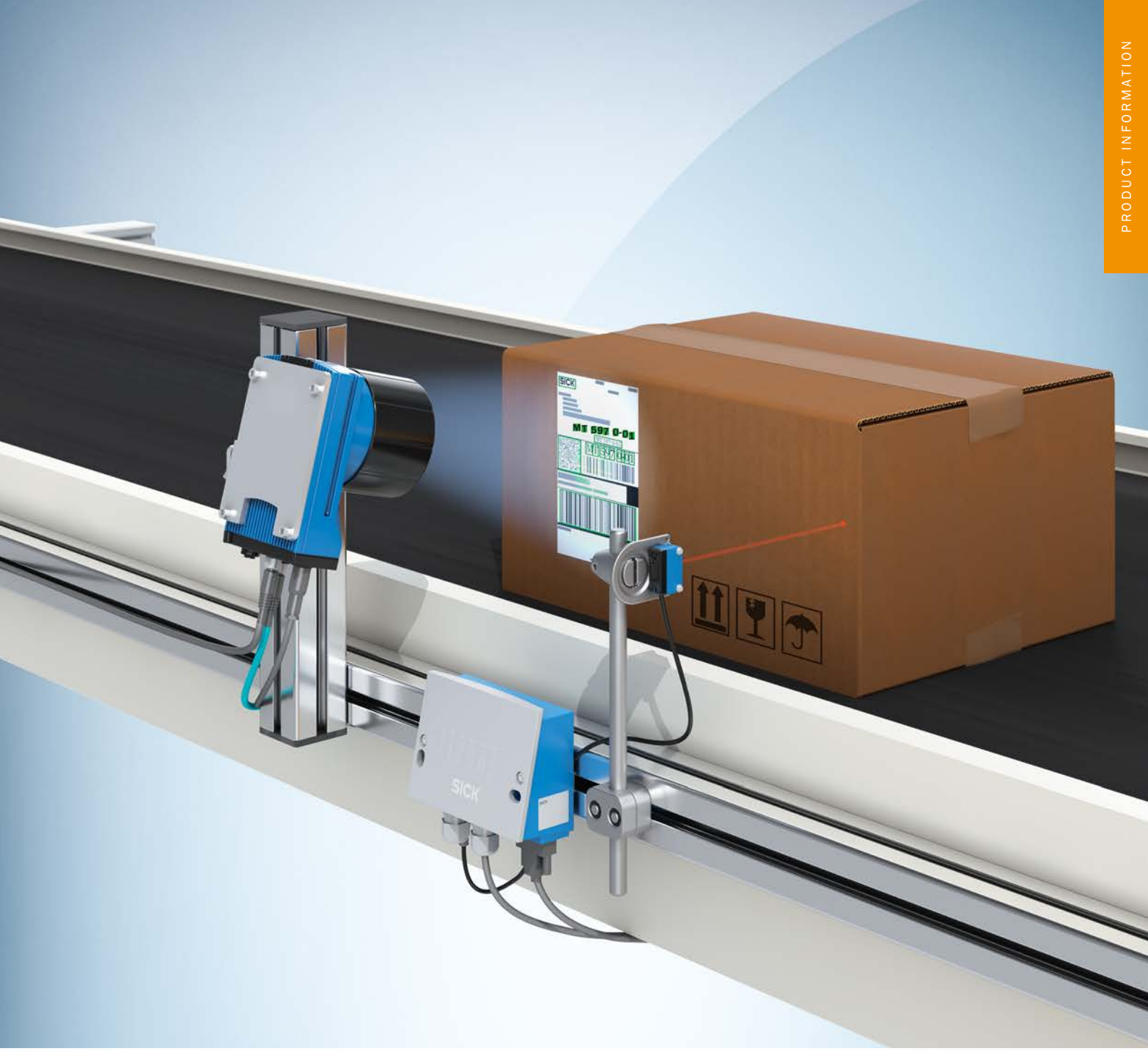
PRODUCT INFORMATION



Label Checker

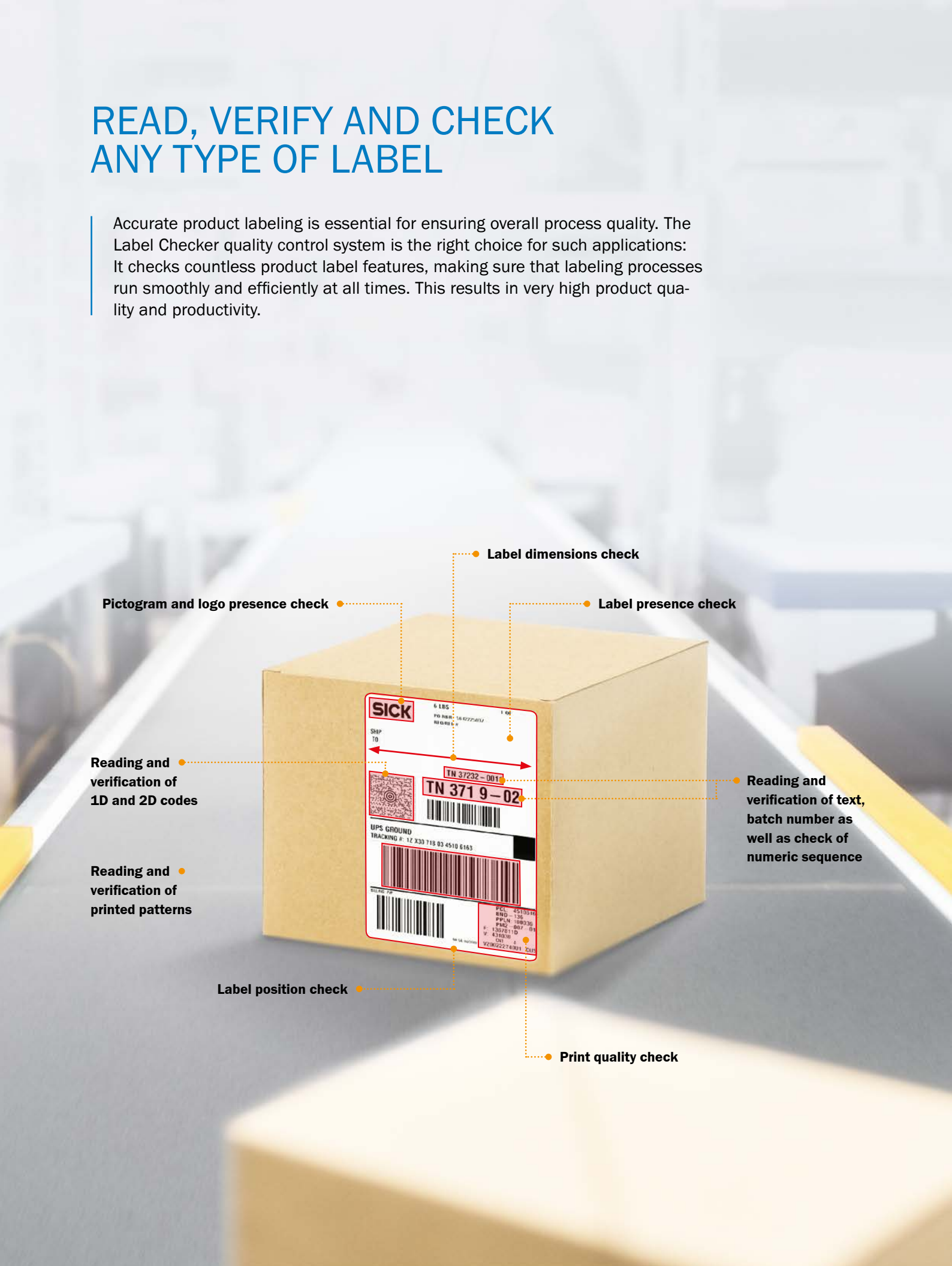
COMPLEX LABEL INSPECTION WITH HIGH PERFORMANCE OCR

Quality control systems

SICK
Sensor Intelligence.

READ, VERIFY AND CHECK ANY TYPE OF LABEL

Accurate product labeling is essential for ensuring overall process quality. The Label Checker quality control system is the right choice for such applications: It checks countless product label features, making sure that labeling processes run smoothly and efficiently at all times. This results in very high product quality and productivity.



Application examples

Due to its flexibility and wide selection of inspection functions, the Label Checker is suitable for a large variety of applications in the following key industries.

Food and beverage industry

- Checks labels during post-printing and packaging
- Reads labels on products with different shapes and sizes, e.g. round surfaces
- Checks production and expiration dates as well as batch numbers
- Monitors whether labels are correctly attached to products

Pharma and cosmetics industry

- Reads and verifies data, e.g. of expiration dates and pictograms
- Reads pharma codes
- Checks contents of blister packs

Consumer goods industry

- Reads labels on products with different shapes and sizes
- Checks label dimensions
- Can be programmed to monitor several different label types, thereby accelerating product changeovers

Packaging industry

- Inspects packaging and verifies dimensions
- Reads bar codes, 2D codes and markings readable for humans
- Can read and inspect even texts with weak contrasts, therefore preventing unplanned plant downtime

Automotive and parts suppliers

- Checks batch and serial numbers
- Complies with the product requirements of Industry 4.0
- Checks parts from different suppliers
- Inspects the presense of labels and direct part marks (DPM)

Electronics and solar industry

- Identifies parts based on printed, embossed or laser-cut numbers and text
- Controls batches and serial numbers
- Reads very small part markings as well as large product labels

EFFICIENT LABEL INSPECTIONS WITH HIGH-PERFORMANCE OCR

The compact, modular Label Checker covers a broad range of label inspection tasks. Take advantage of its advanced OCR algorithms and the image-based code reader of the quality control system.
Choose your solution from its variants: Label Checker offers various resolutions and different processing performances. Extensive lens and illumination accessories round out the offer and ensure that even very different application requirements are met.

Modular, robust system for multiple applications

Multiple settings for different tasks

- Saves countless job settings for different label types on a microSD memory card - without reprogramming of the system
- Easy switching for product changeovers prevents plant downtime

Robust housing for harsh environments

- IP65 or IP76 metal housing with flexible mounting
- Rugged version for very challenging industrial environments
- Withstands high temperatures, dust and humidity

Supports protocols in use all over the world

- Wide communication protocol options allow worldwide application of the system
- Supports TCP/IP, PROFINET, Ethernet UDP, Ethernet/IP, FTP, RS-232, RS-422 and programmable I/Os
- Writes linked results into the output string and receives the expected text

Tailor-made modular camera design for various applications

- Exchangeable high-power LED
- Exchangeable C-mount lens, optionally with filter

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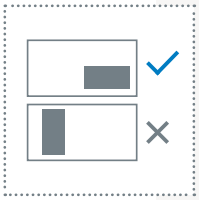
High-end features that advance your label inspection process

Clever algorithm ensures seamless operation and accelerates workflow

- Optical Character Recognition (OCR) and verification for reading and inspection of production dates, batch numbers, etc.
- Algorithm converts printed text into digital form to verify the correctness of the respective text
- Algorithms are based on deep-learning technology
- Automatically separates overlapping characters

Comprehensive label checking with automatic bar code detection

- Locates, reads and validates bar codes and 2D codes within previously defined areas
- Verifies the correct numerical data
- Code quality check
- Easy label dimension check and verification of label position



Identifies different shapes, thereby mastering changing label positions

- Use of reference shapes to determine the label position
- Reliable verification and inspection even if the label position changes
- System covers a reading range of 360 degrees

Easy commmissioning and operation allow for simple system integration into the production process

Compact design reduces costs and space requirements

- Save space and reduce wiring effort with the all-in-one standalone system
- No need for an evaluation unit
- The camera performs all the calculations itself

User-friendly commissioning and maintenance

- Web interface for easy access and control
- Simple commissioning using a web browser
- No additional software necessary

Easy teach-in of fonts enables optimal reading reliability

- Wide selection of fonts included in the system
- Create and supplement your own font sets
- Allows you to read even exotic fonts and symbols

COMPLEX LABEL INSPECTIONS WITH HIGH PERFORMANCE OCR

Product description

Label Checker is a multifunctional and easy-to-set compact quality control system designed for various label inspections, with primary focus on optical character recognition. The system improves productivity by performing multiple inspections simultaneously and ensures high quality output. Thanks to the advanced tools, it is not limited to reading and verifying printed texts, barcodes and 2D codes, but it also checks the correct label position, presence of pictograms, and print quality. Moreover, Label Checker offers image filters and other features such as overlapping characters segmentation and image calibration that ensure reliable operation, even in challenging applications.

At a glance

- OCR, 1D, and 2D codes: reading, recognition, validation, verification
- Additional inspections: pattern matching, edge-to-edge measurement, pixel counter, blob inspection, shape locator, print quality check
- Easy teach-in of custom font
- Flexible range of C-mount lens and integrated illumination
- Web-based user interface

Your benefits

- Compact all-in-one system
- Multifunctional by combining various label inspections
- High reliability thanks to robust deep-learning-based algorithms
- Easy set-up and configuration via web interface
- Flexible optical design and high-power illumination, able to fit almost any application
- Rugged housing, ideal for harsh ambient conditions
- Multiple programs and job switching

CE

Additional information

➜ www.sick.com/Label_Checker

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

General notes

	LBC631	LBC632	LBC642	LBC652	LBC654
Items supplied	InspectorP V2D631P LabelChecker software	InspectorP V2D632P LabelChecker software	InspectorP V2D642P LabelChecker software	InspectorP V2D652P LabelChecker software	InspectorP V2D654P LabelChecker software

Features

	LBC631	LBC632	LBC642	LBC652	LBC654
Industry	Food and beverage Automotive and part suppliers Packaging Pharma and cosmetics Consumer goods Electronics and solar Retail and warehousing				
Light source	Illumination LEDs: (to be ordered separately as accessories) Aiming laser: visible red light (λ = 630 ... 680 nm)				
Laser class	1, complies with 21 CFR 1040.10 except for the tolerance according to “Laser Notice No. 50” from June 24, 2007 (IEC 60825-1:2014, EN 60825-1:2014)				
Focus	Adjustable focus (manually)				
Sensor	CMOS matrix sensor, grayscale values, 1.3 Mpixel, 1,280 px, 1,024 px	CMOS matrix sensor, grayscale values, 1.9 Mpixel, 1,600 px, 1,200 px	CMOS matrix sensor, grayscale values, 1.7 Mpixel, 1,600 px, 1,088 px	CMOS matrix sensor, grayscale values, 2.1 Mpixel, 2,048 dpi, 1,088 dpi	CMOS matrix sensor, grayscale values, 4.2 Mpixel, 2,048 px, 2,048 px
Spectral range	Approx. 400 nm ... 900 nm				
Lens	Exchangeable (C-mount), to be ordered separately as an accessory				

Performance

	LBC631	LBC632	LBC642	LBC652	LBC654
Bar code types	2/5 Industrial Interleaved 2 of 5 Codabar Code 39 Code 93 Code 128 EAN-8 EAN13 Pharmacode				
2D code types	Data Matrix ECC200 QR code Micro QR code PDF417 Aztec				
OCR/OCV fonts	Universal, industrial, document, DotPrint, pharma, OCR-A, OCR-B, Arabic numbers				
Optical format	1/1.8”		1″		

Interfaces

	LBC631	LBC632	LBC642	LBC652	LBC654
Serial (RS-232, RS-422) Data transmission rate	✔ (300 Baud ... 115.2 kBaud)				
Ethernet Function	✔, TCP/IP EtherNet/IP UDP / PROFINET FTP HTTP				
Data transmission rate	10/100/1,000 Mbit/s				
Operator interface	Web server				
Optical indicators	5 x status display, 5 x LED bar graph, 1 green/red feedback spot		10 x status display, 10 x LED bar graph, 1 green feedback spot		
Data storage and retrieval	Image and data logging via microSD memory card and external FTP				
Control element	2 buttons				
Acoustic indicators	Beeper				

Mechanics/electronics

	LBC631	LBC632	LBC642	LBC652	LBC654
Dimensions, system (L x W x H)	108 mm x 63 mm x 46 mm (only housing without lens and protective hood)		142 mm x 90 m x 46 mm (only housing without lens and protective hood)		
Enclosure rating	IP67 (EN 60529 (1991-10), EN 60529/A2 (2002-02))		IP65 (EN 60529 (1991-10), EN 60529/A2 (2002-02))		
Protection class	III (EN 60950-1 (2014-08))				
Power consumption	typ. 10 W, ± 20 %				
Lens	Exchangeable (C-mount), to be ordered separately as an accessory				
Housing material	Aluminum die cast				
Output current	≤ 100 mA				
Connections	1 x M12, 17-pin male connector (serial, I/Os, voltage supply) 1 x M8, 4-pin female connector (USB, not used) 2 x M12, 8-pin female connector (Gigabit Ethernet, only one connection used) 1 x M12, 4-pin male connector (external illumination)		1 x M12, 17-pin male connector (serial, I/Os, voltage supply) 1 x M8, 4-pin female connector (USB, not used) 2 x M12, 8-pin female connector (Gigabit Ethernet, only one connection used)		
Supply voltage	12 V DC ... 24 V DC, ± 20 %		24 V DC, ± 20 %		
Window material	PMMA		Glass		
Weight	430 g		635 g		

Ambient data

Ambient temperature operation	0 °C ... +50 °C
Ambient storage temperature [1]	–20 °C ... +70 °C
Shock load	EN 60068-2-27:2009-05
Vibration load	EN 60068-2-6:2008-02

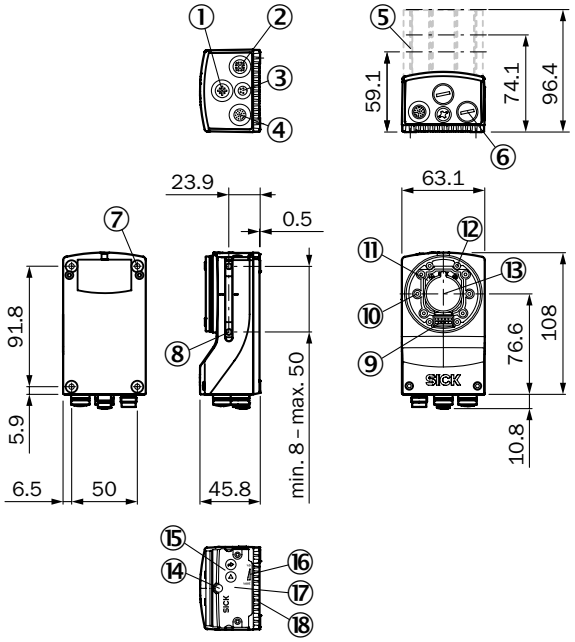
[1] Permissible relative air humidity: 0 % ... 90 % (non-condensing).

Ordering information

Sensor	Type	Part no.
CMOS matrix sensor, grayscale values 1.3 Mpixel (1,280 px x 1,024 px)	LBC631	1091689
CMOS matrix sensor, grayscale values 1.9 Mpixel (1,600 px x 1,200 px)	LBC632	1091688
CMOS matrix sensor, grayscale values 1.7 Mpixel (1,600 px x 1,088 px)	LBC642	1091687
CMOS matrix sensor, grayscale values 2.1 Mpixel (2,048 px x 1,088 px)	LBC652	1091686
CMOS matrix sensor, grayscale values 4.2 Mpixel (2,048 px x 2,048 px)	LBC654	1086947

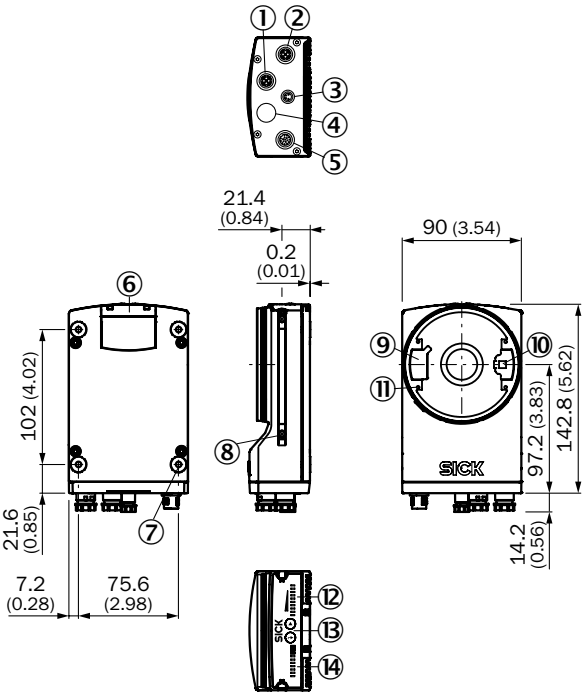
Dimensional drawings (Dimensions in mm (inch))

InspectorP V2D631P, InspectorP V2D632P



① External illumination connection
② Gigabit Ethernet port
③ USB port
④ Power, serial, CAN, and I/O connection
⑤ 22.7 mm, 37.7 mm, or 60 mm protective cover for optics
⑥ Protective caps/plugs to seal any electrical connections that are not in use
⑦ M5 blind tapped holes, 5 mm deep (4 x), for mounting the sensor
⑧ M5 sliding nut, 5.5 mm deep (4 x), pivoting, for an alternative method of mounting the sensor
⑨ Integrated illumination connection
⑩ Aiming laser (2 x)
⑪ S-mount or C-mount optics module
⑫ 2.5 mm blind tapped holes (4 x) for mounting the spacers for the integrable illumination
⑬ Optical axis and center of the image sensor
⑭ Manual focus screw, underneath cover/label (S-mount Flex)
⑮ Function button (2 x)
⑯ Bar graph display
⑰ Removable cover for microSD memory card slot and manual focus screw (S-mount)
⑱ LEDs for status display (2 levels), 5 x

InspectorP V2D642P, InspectorP V2D652P, InspectorP V2D654P



① “Ethernet” P1 connection
② P3 connection “Ethernet”
③ X2 “USB” connection or “trigger external lighting”, depending on type
④ P2 connection “CAN OUT”, depending on type
⑤ X1 “Power/Serial Data/CAN/I/O” connection or “CAN IN”, depending on type
⑥ Cover for the microSD memory card
⑦ M5 blind tapped holes, 5 mm deep (4 x), for mounting the sensor
⑧ Sliding nut M5, 5.5 mm deep (2 x), for mounting (as alternative)
⑨ Plug connector for connecting the integrated lighting
⑩ Outlet, aiming laser
⑪ 2.5 mm blind tapped holes (4 x) for mounting the spacers for the integrable illumination
⑫ Bar graph display
⑬ Function button (2 x)
⑭ LED for status display (2 levels), 10 x

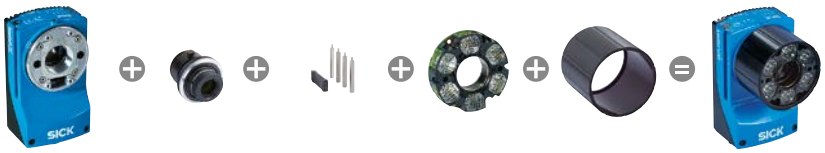
Selection guide LBC63x

Body, incl. C-mount module | C-mount lens | Mounting bracket | External illumination | Lens protective hood | Assembled device, incl. all ICL parts

LBC631 1091689
LBC632 1091688

- Focal length **8 mm** Aperture **F1.4–16** 5325091 → An external, application-specific illumination is required → **Medium – 37.7mm** 2079127
- Focal length **12 mm** Aperture **F1.4–16** 5325403 → An external, application-specific illumination is required → **Long – 60 mm** 2079204
- Focal length **16 mm** Aperture **F1.4–16** 5325404 → Bracket for ICL mounting 2081187 → ICL280, **red** 1052472 / ICL280, **infrared** 1057645
- Focal length **25 mm** Aperture **F1.4–16** 5325405 → Bracket for ICL mounting 2081187 → ICL260, **red** 1052495 / ICL280, **infrared** 1057645
- Focal length **35 mm** Aperture **F1.4–16** 5325406 → Bracket for ICL mounting 2081187 → ICL300, **red** 1046820 / ICL300, **infrared** 1047957
- Focal length **50 mm** Aperture **F1.4–16** 5325407 → Bracket for ICL mounting 2081187 → ICL300, **red** 1046820 / ICL300, **infrared** 1047957

→ Hood to be used with ICL **illumination** 2081544



Body, incl. C-mount module | Compact C-mount lens | Spacer screws and illumination connector | Integratable illumination | Lens protective hood | Assembled device, incl. all mentioned parts

LBC631 1091689
LBC632 1091688

- Focal length **12 mm** Aperture **F8** 2079348 → **Medium – 15 mm** 2079501
  - **Medium, white** 2078430 → **Medium – 37.7 mm** 2079127
  - **Medium, blue** 2083814 → **Medium – 37.7 mm** 2079127
  - **Wide, IR** 2101371 → **Medium – 37.7 mm** 2092590
- Focal length **16 mm** Aperture **F8** 2079346 → **Long – 37 mm** 2079502
  - **Medium, white** 2078430 → **Long – 60 mm** 2079204
  - **Medium, blue** 2083814 → **Long – 60 mm** 2079204
  - **Medium, IR** 2098834 → **Long – 60 mm** 2092592
- Focal length **25 mm** Aperture **F8** 2079343 → **Medium – 15 mm** 2079501
  - **Narrow, white** 2078431 → **Medium – 37.7 mm** 2079127
  - **Narrow, blue** 2083812 → **Medium – 37.7 mm** 2079127
- Focal length **35 mm** Aperture **F8** 2079344 → **Long – 37 mm** 2079502
  - **Narrow, white** 2078431 → **Long – 60 mm** 2079204
  - **Narrow, blue** 2083812 → **Long – 60 mm** 2079204

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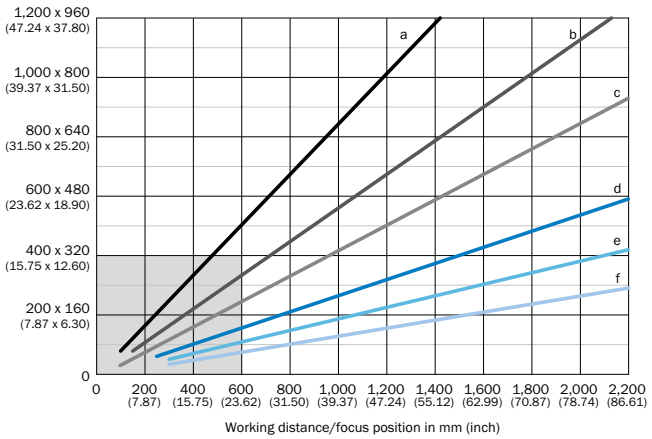
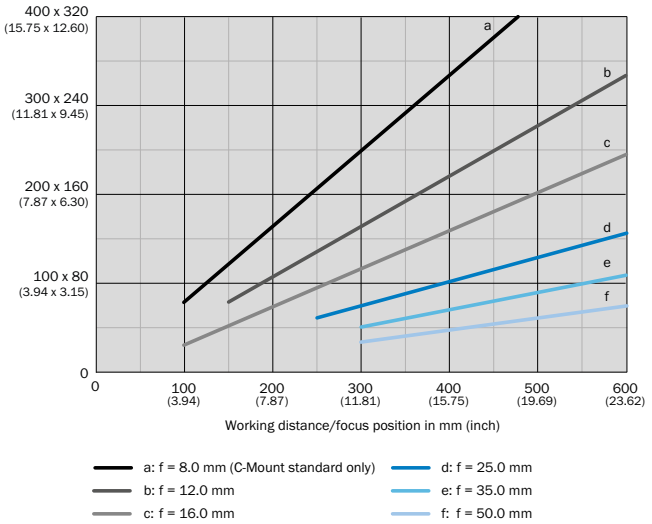
LBC631

Field of view in mm² (sq inch)



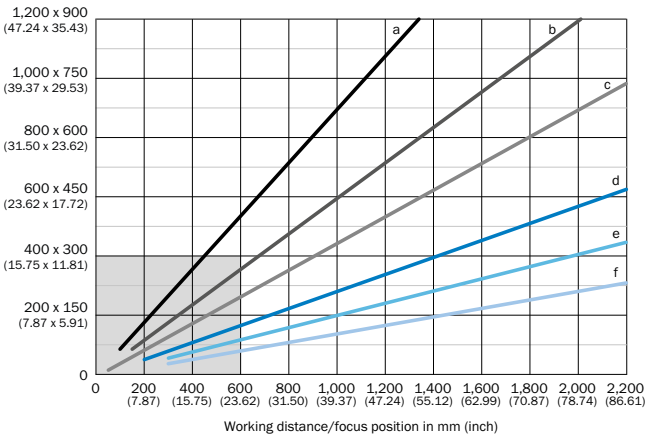
Field of view in mm² (sq inch)



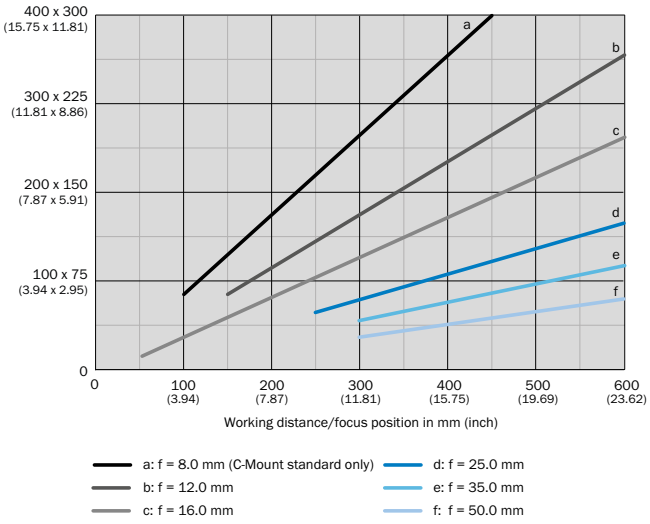
For S-mount and standard C-mount lenses, spacer rings are needed for working distances shorter than approximately 10 times the focal length. For compact C-mount lenses, spacer rings are not needed, but the built-in illumination cannot be used for distances shorter than 300 mm.

LBC632

Field of view in mm² (sq inch)

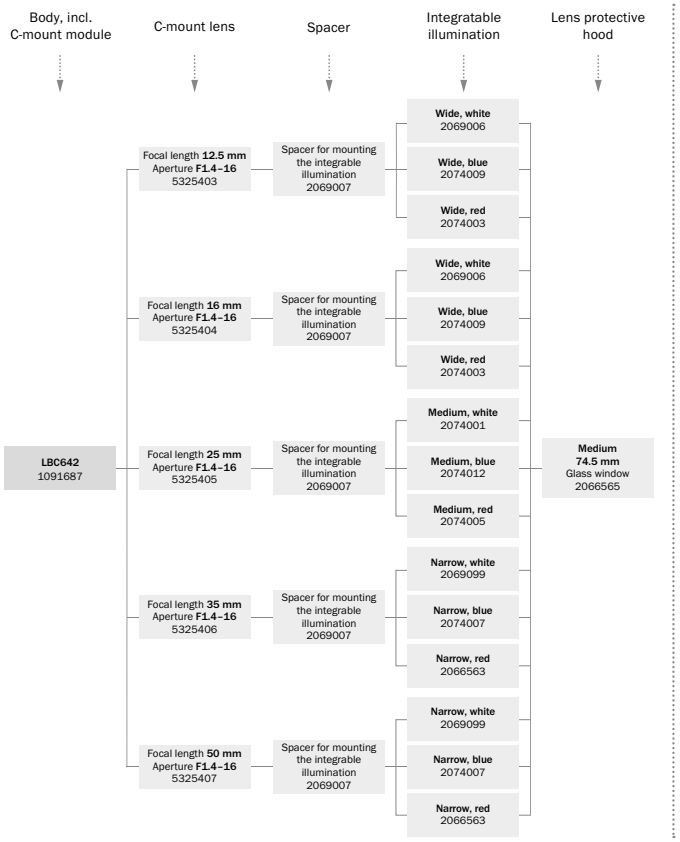


Field of view in mm² (sq inch)

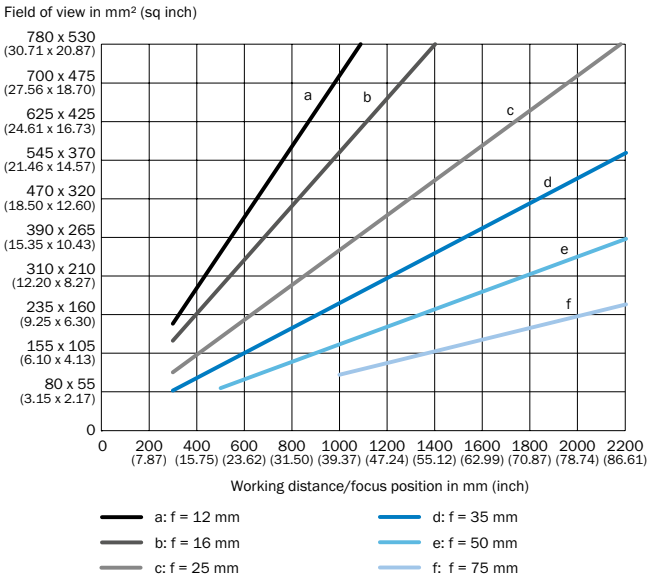


For S-mount and standard C-mount lenses, spacer rings are needed for working distances shorter than approximately 10 times the focal length. For compact C-mount lenses, spacer rings are not needed, but the built-in illumination cannot be used for distances shorter than 300 mm.

Selection guide LBC642



LBC642



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Selection guide LBC65x

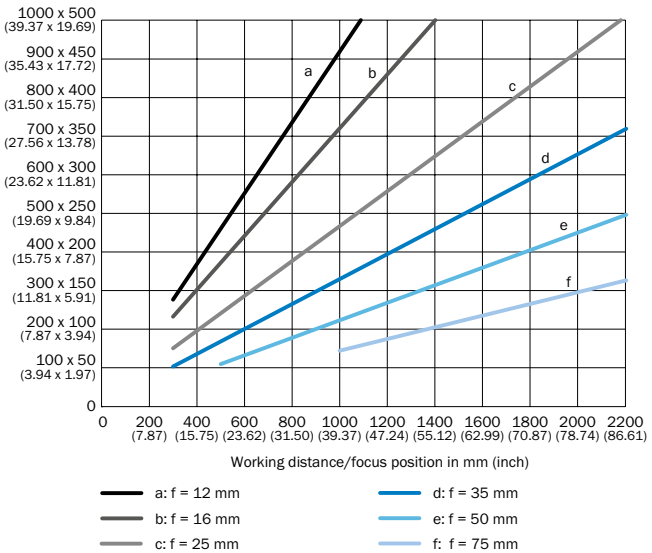
Body, incl. C-mount module | C-mount lens | Spacer | Integratable illumination | Lens protective hood | Assembled device, incl. all mentioned parts

- **LBC652** 1091686
- **LBC654** 1086947

Focal length	Spacer for mounting the integrable illumination 2069007	Integratable illumination	Lens protective hood
Focal length **12.5 mm** Aperture **F1.4–16** 5327522		**Wide, white** 2069006	**Medium 74.5 mm** Glass window 2066565
		Wide, blue 2074009	
		Wide, red 2074003	
Focal length **16 mm** Aperture **F1.4–16** 5327523		**Wide, white** 2069006	
		Wide, blue 2074009	
		Wide, red 2074003	
Focal length **25 mm** Aperture **F1.4–16** 5327524		**Medium, white** 2074001	
		Medium, blue 2074012	
		Medium, red 2074005	
Focal length **35 mm** Aperture **F1.4–16** 5327525		**Narrow, white** 2069099	
		Narrow, blue 2074007	
		Narrow, red 2066563	
Focal length **50 mm** Aperture **F1.4–16** 5327526		**Narrow, white** 2069099	
		Narrow, blue 2074007	
		Narrow, red 2066563	
Focal length **75 mm** Aperture **F1.8–16** 5327527		**Narrow, white** 2069099	
		Narrow, blue 2074007	
		Narrow, red 2066563	

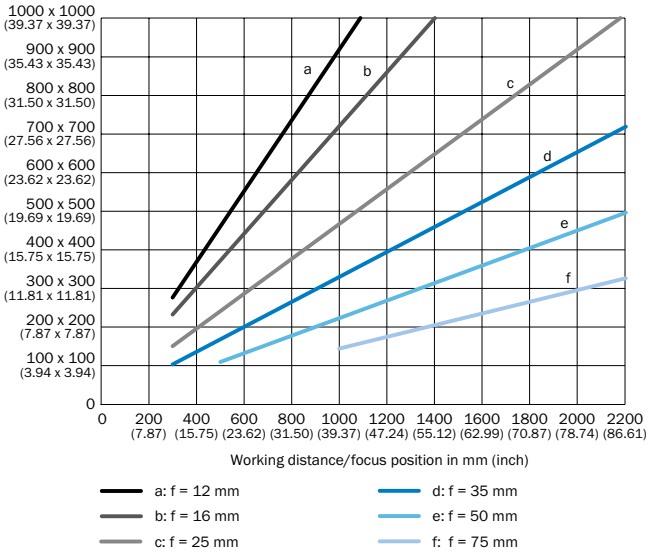
LBC652

Field of view in mm² (sq inch)



LBC654

Field of view in mm² (sq inch)



Recommended accessories

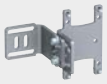
Figure	Brief description	Type	Part no.	LBC631	LBC632	LBC642	LBC652	LBC654
Mounting brackets and plates								
	Mounting bracket set consisting of mounting bracket, cooling plate, includes angle display for setting the tilt angle	Mounting bracket	2076735	●	●	–	–	–
	Mounting bracket set consisting of mounting angle, cooling plate and screw including skew angle display	Mounting bracket kit	2069171	–	–	●	●	●
Other mounting accessories								
	Sliding nut, M5, short	Sliding nut	5324896	●	●	●	●	●
Terminal and alignment brackets								
 Illustration may differ	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	●	●	–	–	–
	Spacer for mounting the integrable illumination, length: 51.3 mm	Spacer	2069007	–	–	●	●	●
Plug connectors and cables								
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, shielded, 3 m	Connecting cable (female connector - open)	2070425	●	●	●	●	●
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Gigabit Ethernet, twisted pair, PUR, halogen-free, shielded, 2 m	SSL-2J08-G02MACE	6049728	●	●	●	●	●
Lenses and accessories								
 Illustration may differ	C-mount 2/3", focal length 25 mm, aperture 1.4 – 16, 35 mm (Without C-mount thread)	C-mount lens	5325405	–	–	●	–	–
	Compact C-mount 2/3", focal length 12 mm, aperture 8	C-mount lens	2079348	●	●	–	–	–
	Optics kit 03 incl. lens with focal distance 25 mm, white illumination, spacer and optics protective hood	Optics kit 03	1064793	–	–	–	●	●
	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	●	●	–	–	–
	Optics protective hood, IP 65 enclosure rating, length: 74,5 mm, glass window	Protective hood for optical chamber	2066565	–	–	●	–	–
Illuminations								
	Integratable lighting, lighting color white, medium, suitable for S-mount and compact C-mount lenses with a focal length of 12 mm, 16 mm and 17.5 mm	VI55I-WH1441M0	2078430	●	●	–	–	–

Figure	Brief description	Type	Part no.	LBC631	LBC632	LBC642	LBC652	LBC654
 Illustration may differ	Integratable lighting, lighting color white, medium, suitable for lenses with a focal length of 25 mm	VI83I-WH1441M0	2074001	–	–	●	–	–
Storage media								
 Illustration may differ	microSD memory card with 1 GB for industrial use	microSD memory card	4051366	●	●	●	●	●

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