Label Checker

COMPLEX LABEL INSPECTIONS 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.

Label dimensions check

Pictogram and logo presence check

Label presence check

Reading and verification of 1D and 2D codes

Reading and verification of text, batch number as well as check of numeric sequence

Reading and verification of printed patterns

Real-time correction of image errors (rectification)

Label position check

Print quality check

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.

High-end features that advance your
label inspection process

### Clever algorithm ensures seamless operation and accelerates workflow
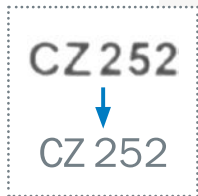
- Optical Character Recognition (OCR) and verification for reading and inspection of production dates, batch numbers, etc.
- Algorithm converts printed text into digital form to verify the correctness of the respective text
- Algorithms are based on deep-learning technology
- Automatically separates 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
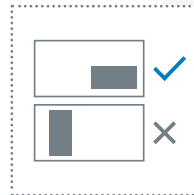
- Use of reference shapes to determine the label position
- Reliable verification and inspection even if the label position changes
- System covers a reading range of 360 degrees

Inspects uneven surfaces and corrects image errors (rectification) in real time
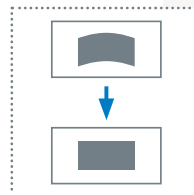
- Correction of perspective distortions and imaging errors caused, for example, by the barrel distortion of the lens

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

Great range of system variants with different camera designs

- Camera design with built-in lens and illumination
- Tailor-made modular design with exchangeable high-power LED and C-mount lens, optionally with filter

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

➕ Easy teach-in of fonts enables optimal reading reliability

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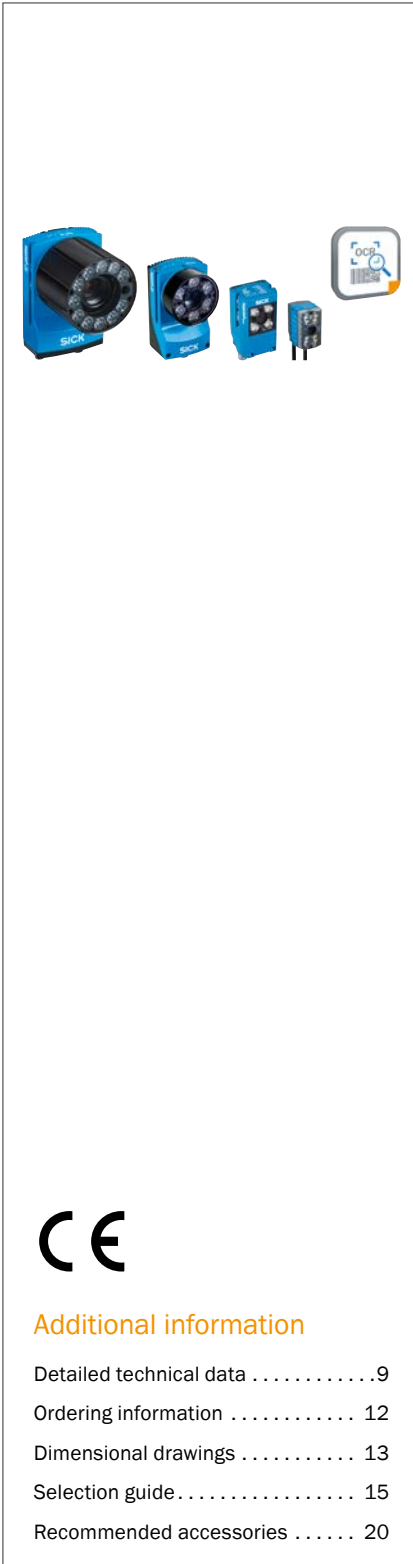- Allows you to read even exotic fonts and symbols

➕ User-friendly commissioning and maintenance

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

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
- Improved inspection on uneven surfaces due to real-time correction of image errors (rectification)
- 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

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.

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

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Items supplied	InspectorP V2D654P / InspectorP V2D652P (depending on type) LabelChecker software	InspectorP V2D642P LabelChecker software	InspectorP V2D632P-2MX-CXB0 / InspectorP V2D631P (depending on type) LabelChecker software	InspectorP V2D621P-2MSFFB5 / InspectorP V2D621P-2MD-FGB5 / InspectorP V2D621P-2MS-FBB5 (depending on type) LabelChecker software	InspectorP V2D611P-MMS-BE4 / InspectorP V2D611P-MMSCE4 (depending on type) LabelChecker software

Features

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Applications	OCR OCV Bar code and 2D code reading Advanced inspections				
Task	OCR Presence inspection Code reading Quality inspection				
Industries	Food and beverage Automotive and parts suppliers Packaging Health care manufacturing Consumer goods Electronics and solar Retail and warehousing				
Light source	Illumination LEDs: (to be ordered separately as accessories) Laser alignment aid: visible red light (λ = 630 nm … 680 nm)			LED, visible red light, 617 nm, ± 15 nm LED, infrared, 850 nm, ± 25 nm (depending on type)	LED, visible amber light, 617 nm, ± 50 nm
Laser class	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)				1, complies with 21 CFR 1040.10 except for the conformance according to "Laser Notice No. 56" from May 8, 2019 (IEC 60825-1:2014, EN 60825-1:2014)
Focus	Adjustable focus (manually)			Adjustable focus (electric)	Adjustable focus (manually)

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Sensor	CMOS matrix sensor, grayscale values, 4.2 Mpixel, 2,048 px, 2,048 px CMOS matrix sensor, grayscale values, 2.1 Mpixel, 2,048 px, 1,088 px (depending on type)	CMOS matrix sensor, grayscale values, 1.7 Mpixel, 1,600 px, 1,088 px	CMOS matrix sensor, grayscale values, 1.9 Mpixel, 1,600 px, 1,200 px CMOS matrix sensor, grayscale values, 1.3 Mpixel, 1,280 px, 1,024 px (depending on type)	CMOS matrix sensor, grayscale values, 1.3 Mpixel, 1,280 px, 1,024 px	CMOS matrix sensor, grayscale values, 1.3 Mpixel, 1,280 px, 960 px
Spectral range	Approx. 400 nm ... 900 nm				
Lens	C-mount			–	
Focal length	–			17.1 mm / 9.6 mm (depending on type)	6 mm / 12 mm (depending on type)

Performance

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Bar code types	2/5 Industrial Interleaved 2 of 5 Codabar Code 39 Code 93 Code 128 EAN-8 EAN13 Pharmacode			2/5 Industrial Interleaved 2 of 5 Codabar Code 39 Code 93 Code 128 EAN-8 EAN13 Pharmacode GS1-128 / EAN 128 Code 32 UPC-A UPC-E GS1, various types MSI	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"		1/1.8"		1/3"

Interfaces

		LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Ethernet		✔, TCP/IP				
	Function	EtherNet/IP UDP / PROFINET FTP HTTP			EtherNet/IP UDP PROFINET (on request)	EtherNet/IP UDP PROFINET
	Data transmission rate	10/100/1,000 Mbit/s			10/100 MBit/s	

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Protocol	–			FTP HTTP	
Serial (RS-232, RS-422)			✔		
Data transmission rate	–		(300 Baud … 115.2 kBaud)	–	
Serial (RS-232)					✔
Data transmission rate	–				(300 Baud … 115.2 kBaud)
Operator interface	Web server				
Optical indicators	10 x status display, 10 x LED bar graph, 1 green feedback spot		5 x status display, 5 x LED bar graph, 1 green/red feedback spot	16, LEDs, 5 x status display, 5 x LED bar graph, 1 green/red feedback spot	9, LEDs, 6 x status display, 2 x LED alignment aids, 1 x feedback spot
Data storage and retrieval	Image and data logging via microSD memory card and external FTP			–	
Acoustic indicators	Beeper				–

Mechanics/electronics

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Dimensions, system (L x W x H)	142 mm x 90 mm x 46 mm (only housing without lens and protective hood)		108 mm x 63 mm x 46 mm (only housing without lens and protective hood)	71 mm x 43 mm x 35.6 mm	50 mm x 40.3 mm x 29.6 mm
Enclosure rating	IP65 (EN 60529 (1991-10), EN 60529/A2 (2002-02))		IP67 (EN 60529 (1991-10), EN 60529/A2 (2002-02))	IP65	IP54 (EN 60529, EN 60529/A2)
Protection class	III (EN 60950-1 (2014-08))			III	
Power consumption	Typ. 10 W, ± 20 %			Typ. 4 W	Typ. 3.5 W
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, 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 M12, 4-pin female connector (Ethernet)	
Supply voltage	24 V DC, ± 20 %		12 V DC … 24 V DC, ± 20 %		12 V DC … 24 V DC, ± 15 %
Window material	Glass		PMMA	PMMA / Glass (depending on type)	PMMA
Weight	635 g		430 g	170 g	165 g

Ambient data

	LBC65x	LBC642	LBC63x	LBC621-x	LBC611-x
Ambient temperature, operation [1]	0 °C … +50 °C				0 °C … +40 °C
Ambient temperature, storage [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 4.2 Mpixel 2,048 px 2,048 px	LBC654	1086947
CMOS matrix sensor, grayscale values 2.1 Mpixel 2,048 px 1,088 px	LBC652	1091686
CMOS matrix sensor, grayscale values 1.7 Mpixel 1,600 px 1,088 px	LBC642	1091687
CMOS matrix sensor, grayscale values 1.9 Mpixel 1,600 px 1,200 px	LBC632	1091688
CMOS matrix sensor, grayscale values 1.3 Mpixel 1,280 px 1,024 px	LBC631	1091689
	LBC621-17RB	1115469
	LBC621-17NIR	1115470
	LBC621-10RB	1115468
CMOS matrix sensor, grayscale values 1.3 Mpixel 1,280 px 960 px	LBC611-06AB	1120348
	LBC611-12AB	1120347

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

LBC65x / LBC642

LBC63x
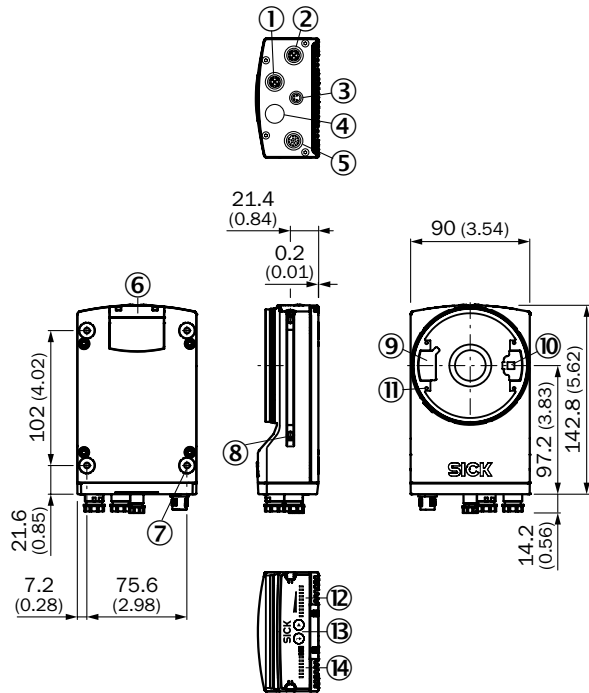
① "Ethernet" P1 connection

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 Laser alignment aid exit

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
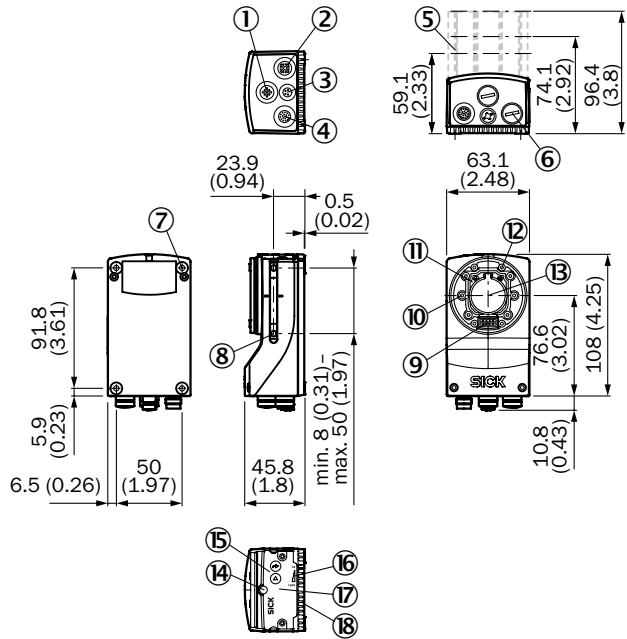
① "External light" connection (external illumination unit, female connector, M12, 4-pin, A-coded)

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)

LBC621-x

LBC611-x
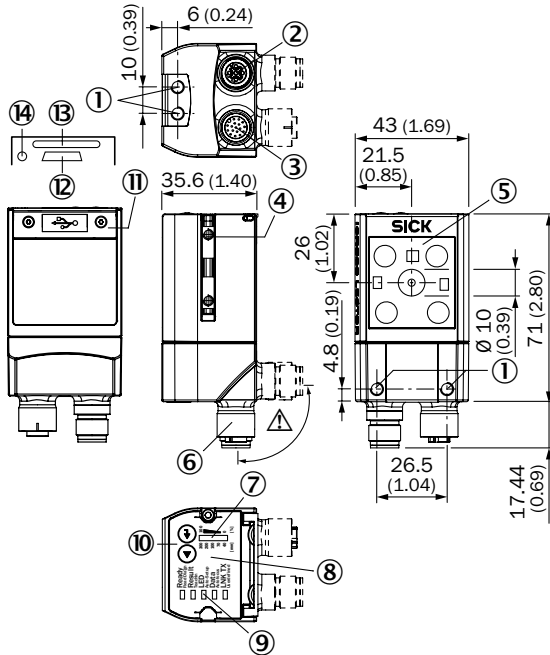
① M5 blind tapped holes, 5 mm deep (4 x), for mounting the sensor
② "Ethernet" connection, 4-pin M12 female connector, D-coded
③ "Power/Serial Data/CAN/I/O" connection, 17-pin M12 male connector, A-coded
④ Sliding nut M5, 5.5 mm deep (2 x), for mounting (as alternative)
⑤ Reading window with internal illumination LEDs (4 x)
⑥ Swivel connector unit
⑦ Bar graph
⑧ Beeper (under housing cover)
⑨ LEDs for status display (2 levels), 5 x
⑩ Function button (2 x)
⑪ Cover (flap)
⑫ "USB" connection (female connector, 5-pin, type Micro-B) interface for temporary use (service)
⑬ Slot for microSD memory card
⑭ LED for microSD memory card
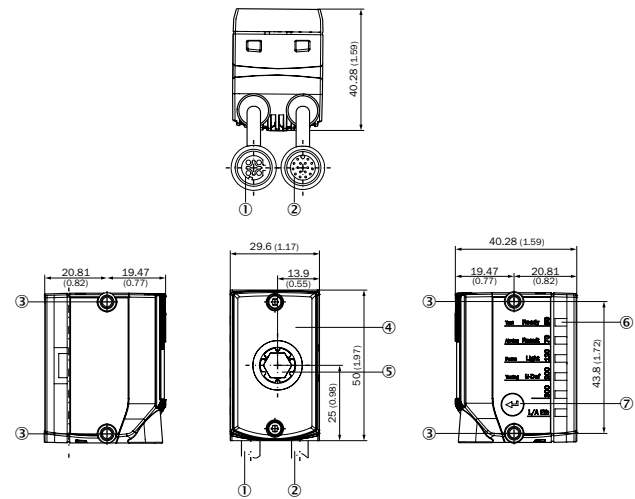
① Connecting cable with "Ethernet" connection (female connector, M12, 4-pin, D-coded), length of cable: 0.25 m
② Connecting cable with "Power/Serial Data/CAN/I/O" connection (male connector, M12, 17-pin, A-coded), length of cable: 0.35 m
③ 4 x M4 blind tapped holes, 6.4 mm deep for mounting the device
④ Viewing window with 8 integrated illumination LEDs, 2 LED alignment aids, 1 feedback LED, 1 time-of-flight sensor
⑤ Optics, manual focus adjustment with the help of a focus adjustment tool
⑥ 6 status LEDs to display the focus position and working distance, device status and device function (3 display levels)
⑦ Function key

Selection guide

LBC65x

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

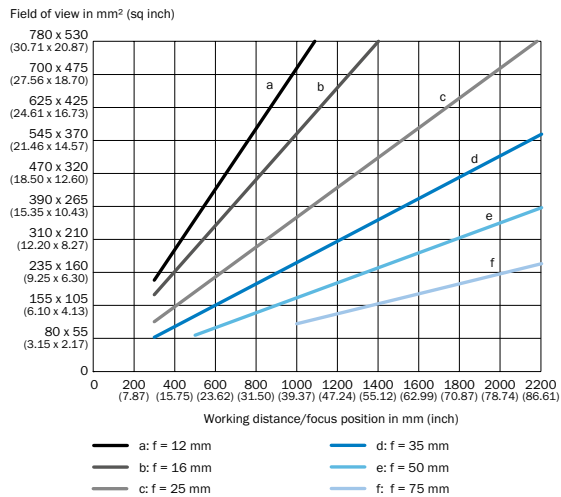|		
	Focal length **12.5 mm** Aperture **F1.4–16** 5327522	Spacer for mounting the integrable illumination 2069007
	Focal length **16 mm** Aperture **F1.4–16** 5327523	Spacer for mounting the integrable illumination 2069007
LBC652 1091686	Focal length **25 mm** Aperture **F1.4–16** 5327524	Spacer for mounting the integrable illumination 2069007
LBC654 1086947		
	Focal length **35 mm** Aperture **F1.4–16** 5327525	Spacer for mounting the integrable illumination 2069007
	Focal length **50 mm** Aperture **F1.4–16** 5327526	Spacer for mounting the integrable illumination 2069007
	Focal length **75 mm** Aperture **F1.8–16** 5327527	Spacer for mounting the integrable illumination 2069007

Integratable illumination:
- **Wide, white** 2069006
- **Wide, blue** 2074009
- **Wide, red** 2074003
- **Wide, white** 2069006
- **Wide, blue** 2074009
- **Wide, red** 2074003
- **Medium, white** 2074001
- **Medium, blue** 2074012
- **Medium, red** 2074005
- **Narrow, white** 2069099
- **Narrow, blue** 2074007
- **Narrow, red** 2066563
- **Narrow, white** 2069099
- **Narrow, blue** 2074007
- **Narrow, red** 2066563
- **Narrow, white** 2069099
- **Narrow, blue** 2074007
- **Narrow, red** 2066563

Lens protective hood:
- **Medium 74.5 mm** Glass window 2066565

Field of view in mm² (sq inch)

a: f = 12 mm	d: f = 35 mm
b: f = 16 mm	e: f = 50 mm
c: f = 25 mm	f: f = 75 mm

Working distance/focus position in mm (inch)
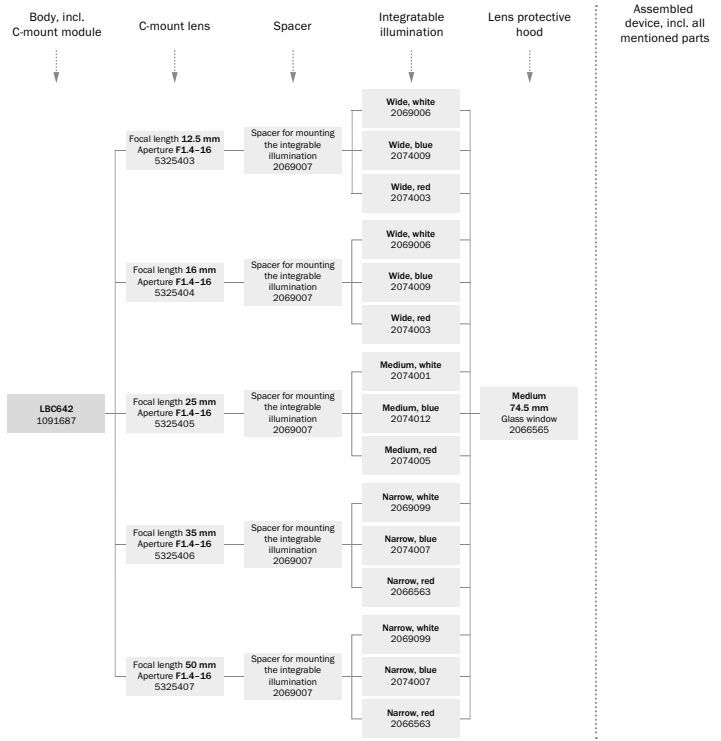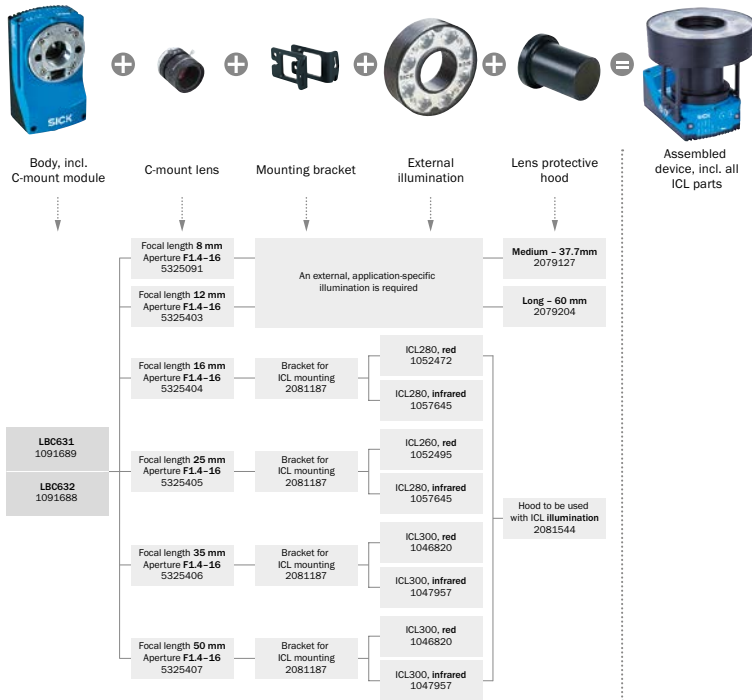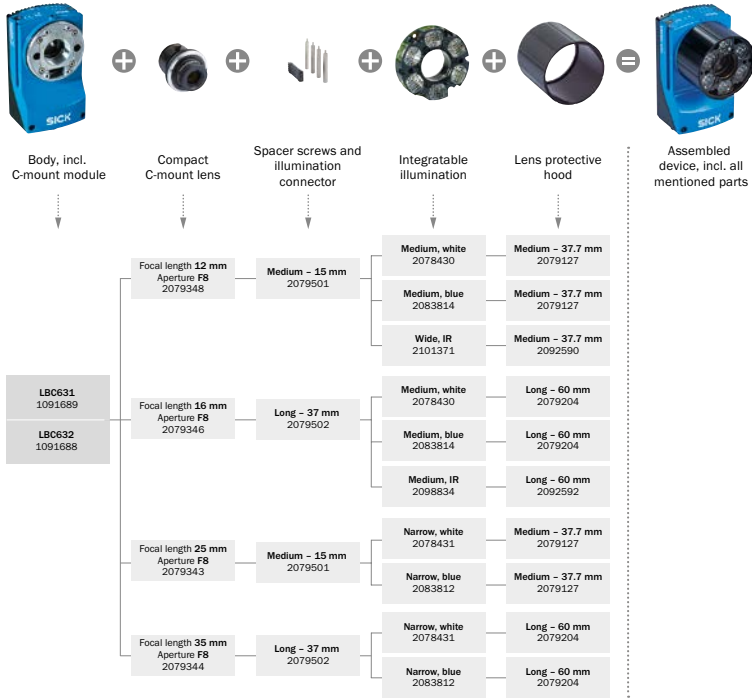
① Field of view: horizontal x vertical in mm
② Approximate resolution in mm/px
③ Lens focal length
④ Working distance/Focus position in mm

LBC642

Body, incl. C-mount module

C-mount lens

Spacer

Integratable illumination

Lens protective hood

Assembled device, incl. all mentioned parts

LBC642 1091687				

Focal length **12.5 mm** Aperture **F1.4–16** 5325403

Focal length **16 mm** Aperture **F1.4–16** 5325404

Focal length **25 mm** Aperture **F1.4–16** 5325405

Focal length **35 mm** Aperture **F1.4–16** 5325406

Focal length **50 mm** Aperture **F1.4–16** 5325407

Spacer for mounting the integrable illumination 2069007

Wide, white 2069006

Wide, blue 2074009

Wide, red 2074003

Wide, white 2069006

Wide, blue 2074009

Wide, red 2074003

Medium, white 2074001

Medium, blue 2074012

Medium, red 2074005

Narrow, white 2069099

Narrow, blue 2074007

Narrow, red 2066563

Narrow, white 2069099

Narrow, blue 2074007

Narrow, red 2066563

Medium 74.5 mm Glass window 2066565

Field of view in mm² (sq inch)

780 x 530 (30.71 x 20.87)	
700 x 475 (27.56 x 18.70)	
625 x 425 (24.61 x 16.73)	
545 x 370 (21.46 x 14.57)	
470 x 320 (18.50 x 12.60)	
390 x 265 (15.35 x 10.43)	
310 x 210 (12.20 x 8.27)	
235 x 160 (9.25 x 6.30)	
155 x 105 (6.10 x 4.13)	
80 x 55 (3.15 x 2.17)	

Working distance/focus position in mm (inch)

0   200 (7.87)   400 (15.75)   600 (23.62)   800 (31.50)   1000 (39.37)   1200 (47.24)   1400 (55.12)   1600 (62.99)   1800 (70.87)   2000 (78.74)   2200 (86.61)

- a: f = 12 mm
- b: f = 16 mm
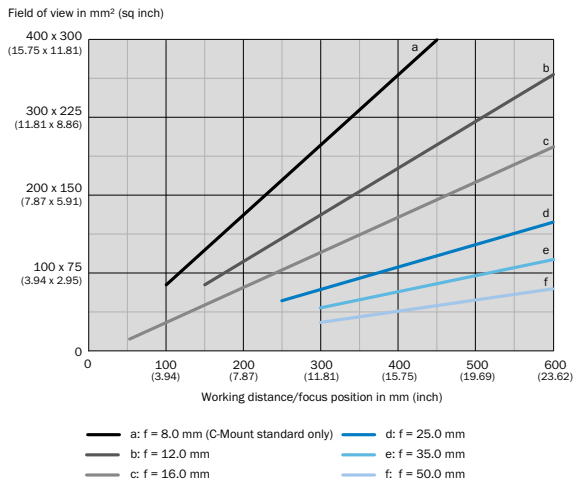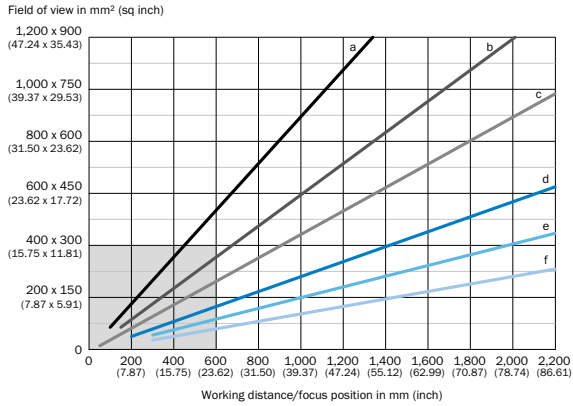- c: f = 25 mm
- d: f = 35 mm
- e: f = 50 mm
- f: f = 75 mm

① Field of view: horizontal x vertical in mm
② Approximate resolution in mm/px
③ Lens focal length
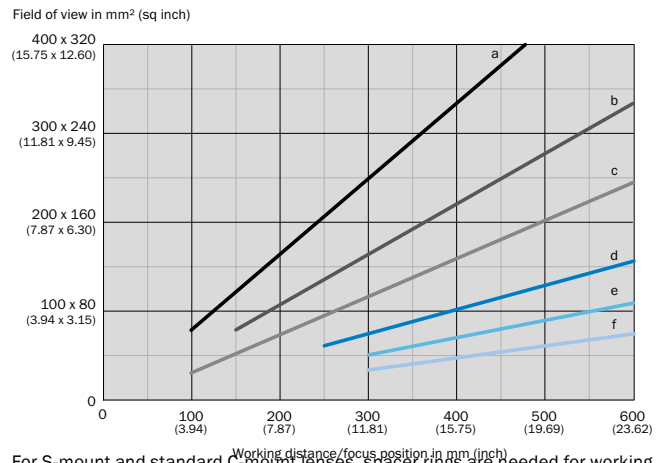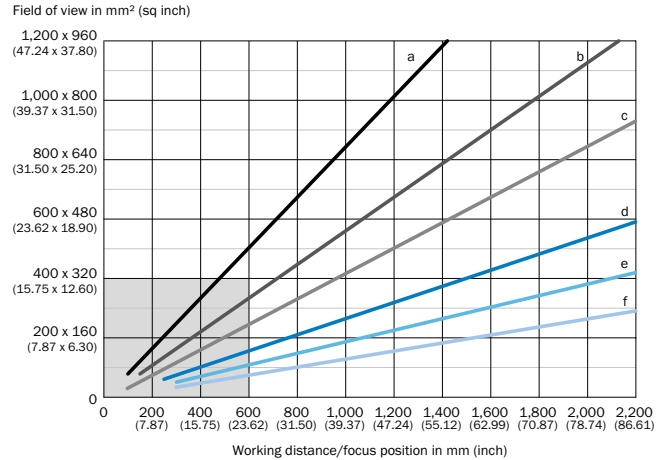④ Working distance/Focus position in mm

LBC63x

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

Body options:
- LBC631 — 1091689
- LBC632 — 1091688

Compact C-mount lens	Spacer screws and illumination connector	Integratable illumination	Lens protective hood
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

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

Body options:
- LBC631 — 1091689
- LBC632 — 1091688

C-mount lens	Mounting bracket	External illumination	Lens protective hood
Focal length 8 mm, Aperture F1.4–16 — 5325091	An external, application-specific illumination is required		Medium – 37.7 mm — 2079127
Focal length 12 mm, Aperture F1.4–16 — 5325403			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	Hood to be used with ICL illumination — 2081544
		ICL300, infrared — 1047957	
Focal length 50 mm, Aperture F1.4–16 — 5325407	Bracket for ICL mounting — 2081187	ICL300, red — 1046820	
		ICL300, infrared — 1047957	

LBC632

Field of view in mm² (sq inch)

Field of view in mm² (sq inch)

a: f = 8.0 mm (C-Mount standard only)   d: f = 25.0 mm
b: f = 12.0 mm   e: f = 35.0 mm
c: f = 16.0 mm   f: f = 50.0 mm
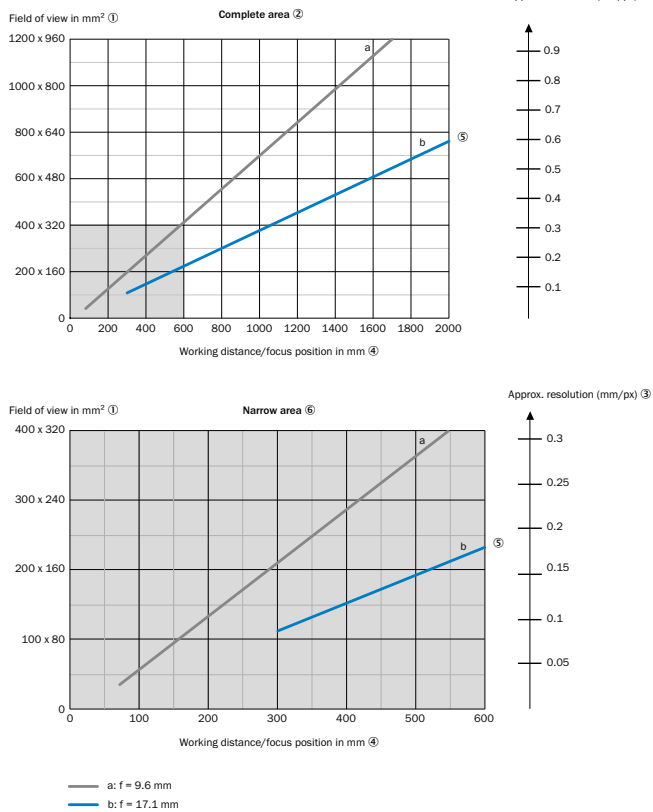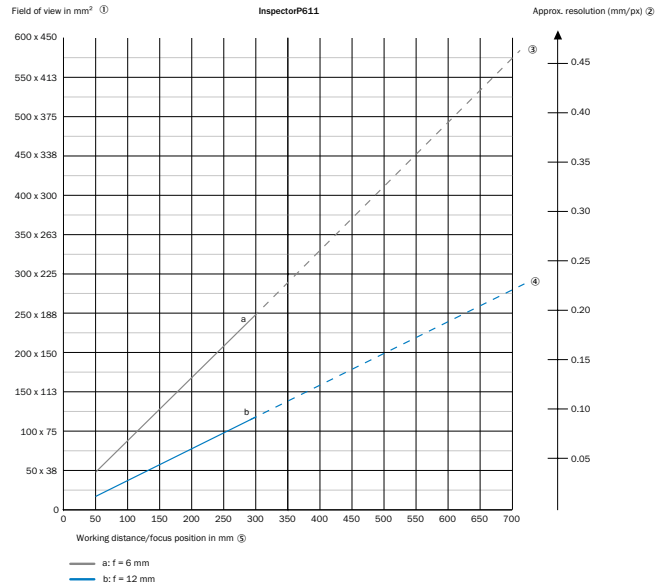
For S-mount and standard C-mount lenses, spacer rings are needed for working distances shorter than approximately 10 times the focal length. For compact C-mount lenses, spacer rings are not needed, but the built-in illumination cannot be used for distances shorter than 300 mm.

① Field of view: horizontal x vertical in mm
② Approximate resolution in mm/px
③ Lens focal length
④ Working distance/Focus position in mm

LBC631

Field of view in mm² (sq inch)

Field of view in mm² (sq inch)

a: f = 8.0 mm (C-Mount standard only)   d: f = 25.0 mm
b: f = 12.0 mm   e: f = 35.0 mm
c: f = 16.0 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 Field of view: horizontal x vertical in mm
② Approximate resolution in mm/px
③ Lens focal length
④ Working distance/Focus position in mm

LBC621-x

Field of view in mm² ①   Complete area ②   Approx. resolution (mm/px) ③

Working distance/focus position in mm ④

Field of view in mm² ①   Narrow area ⑥   Approx. resolution (mm/px) ③

Working distance/focus position in mm ④

a: f = 9.6 mm
b: f = 17.1 mm

Take into account the following aspects when designing the application: the field of view geometry of the device, and the position of the field of view in the space in front of the device. Possible angles at which the objects can arise in relation to the device. For the planned working distance: resultant field of view length and width as well as the approximate resolution.

① Field of view: horizontal x vertical in mm
② Complete area
③ Approximate resolution in mm/px
④ Working distance/Focus position in mm
⑤ Focal length of lens, here example for f = 17.1 mm
⑥ Narrow area

LBC611-x

Field of view in mm² ①   InspectorP611   Approx. resolution (mm/px) ②

Working distance/focus position in mm ⑤

a: f = 6 mm
b: f = 12 mm

Take into account the following aspects when designing the application: the field of view geometry of the device, and the position of the field of view in the space in front of the device. Possible angles at which the objects can arise in relation to the device. For the planned working distance: resultant field of view length and width as well as the approximate resolution.

① Field of view: horizontal x vertical in mm
② Approximate resolution in mm/px
③ F = 6 mm. Solid line with internal lighting, and dashed line with appropriate external illumination accessories.
④ F = 12 mm. Solid line with internal lighting, and dashed line with appropriate external illumination accessories.
⑤ Working distance/Focus position in mm
⑥ With external illumination

Recommended accessories

Figure	Brief description	Type	Part no.	LBC654	LBC652	LBC642	LBC632	LBC631	LBC621-17RB	LBC621-17NIR	LBC621-10RB	LBC611-06AB	LBC611-12AB
Mounting brackets and plates													
	Mounting bracket set consisting of mounting bracket, cooling plate, includes angle display for setting the tilt angle	Mounting bracket	2076735	–	–	–	●	●	–	–	–	–	–
	Bracket with adapter board	Mounting bracket	2042902	–	–	–	–	–	●	●	●	–	–
	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	–	–	●	–	–	–	–	–	–	–
Lenses and accessories													
Illustration may differ	C-mount 1/1.8", 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	–	–	–	●	●	–	–	–	–	–
Illustration may differ	Integratable lighting, lighting color white, medium, suitable for lenses with a focal length of 25 mm	VI83I-WH1441M0	2074001	–	–	●	–	–	–	–	–	–	–

Figure	Brief description	Type	Part no.	LBC654	LBC652	LBC642	LBC632	LBC631	LBC621-17RB	LBC621-17NIR	LBC621-10RB	LBC611-06AB	LBC611-12AB
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, PE-X, shielded, 3 m	YF2ASD-030XXXX-LECX	2070425	●	●	●	●	●	–	–	–	–	–
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: male connector, M12, 17-pin, straight, A-coded Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, shielded, 3 m	YM2A8D-030XXX-F2A8D	6051194	–	–	–	–	–	●	●	●	●	●
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YM2D24-020PN1MRJA4	2106182	–	–	–	–	–	●	●	●	●	●
Illustration may differ	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	YM2X18-020EG2M-RJA8	6049728	●	●	●	●	●	–	–	–	–	–

WORKING WITH SICK IN A DIGITAL WORLD

Making your digital business environment comfortable

Find a suitable solution in next to no time

- Online product catalog
- Application Solver
- Online configurators and selectors

My SICK is your personal self-service portal

- Open around the clock
- Clear product information
- Company-specific price conditions
- Convenience during the ordering process
- Document overview
- Availability and delivery times

Register now:
➜ www.sick.com/myBenefits

Even more value

- Digital Customer Trainings ➜ www.sick.com/c/g300887
- Digital Service Catalog ➜ cloud.sick.com
- SICK AppPool ➜ apppool.cloud.sick.com

SERVICES FOR MACHINES AND PLANTS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.

Consulting and design
Safe and professional

Product and system support
Reliable, fast, and on-site

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe, and economical

Training and education
Practical, focused, and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,400 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. 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.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the 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 SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➜ **www.sick.com**

SICK
Sensor Intelligence.

SICK AG | Waldkirch | Germany | www.sick.com