

## Technical data sheet

### Stationary bar code reader

Part no.: 50131498

BCL 648i OF 100 H

#### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- Accessories



Figure can vary



## Technical data

### Basic data

Series	BCL 600i
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### Special version

Special version	Heating
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### Functions

Functions	Alignment mode
	AutoConfig
	AutoControl
	AutoReflAct
	Code fragment technology
	Heating
	LED indicator
	Reference code comparison

### Characteristic parameters

MTTF	42.4 years
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### Read data

Code types, readable	2/5 Interleaved
	Codabar
	Code 128
	Code 39
	Code 93
	EAN 128
	EAN 8/13
	EAN Addendum
	GS1 Databar Expanded
	GS1 Databar Limited
	GS1 Databar Omnidirectional
	UPC

Scanning rate, typical	800 scans/s
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Bar codes per reading gate, max. number	64 Piece(s)
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### Optical data

Reading distance	450 ... 1,450 mm
Light source	Laser, Blue
Laser light wavelength	405 nm
Laser class	2, IEC/EN 60825-1:2007
Transmitted-signal shape	Continuous
Bar code contrast (PCS)	60 %
Modulus size	0.3 ... 0.5 mm
Reading method	Oscillating-mirror scanner
Beam deflection	Via rotating polygon wheel + stepping motor with mirror
Light beam exit	Zero position at side at angle less than 90°
Oscillating mirror frequency	10 Hz
Max. swivel angle	40 °

### Electrical data

Protective circuit	Short circuit protected
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#### Performance data

Supply voltage $U_B$	10 ... 30 V, DC
Power consumption, max.	14 W

### Inputs/outputs selectable

Output current, max.	60 mA
Number of inputs/outputs selectable	4 Piece(s)
Voltage type, outputs	DC
Switching voltage, outputs	Typ. $U_B / 0$ V
Voltage type, inputs	DC
Switching voltage, inputs	Typ. $U_B / 0$ V
Input current, max.	8 mA

### Interface

Type	PROFINET
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#### Profinet

Function	Process
Conformance class	B
Protocol	PROFINET RT
Switch functionality	Integrated
Transmission speed	100 Mbit/s

### Service interface

Type	USB
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#### USB

Function	Configuration via software
	Service

### Connection

Number of connections	5 Piece(s)
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#### Connection 1

Function	Service interface
Type of connection	USB
Connector type	USB 2.0 Standard-A

#### Connection 2

Function	Signal IN
	Signal OUT
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

#### Connection 3

Function	PWR / SW IN / OUT
Type of connection	Connector
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

#### Connection 4

Function	BUS IN
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

## Technical data

### Connection 5

Function	BUS OUT
Type of connection	Connector
Thread size	M12
Type	Female
No. of pins	4 -pin

### Mechanical data

Design	Cubic
Dimension (W x H x L)	173 mm x 84 mm x 147 mm
Housing material	Metal
Metal housing	Diecast aluminum
Lens cover material	Glass
Net weight	1,500 g
Housing color	Red, RAL 3000 Silver
Type of fastening	Dovetail grooves Mounting thread Via optional mounting device

### Operation and display

Type of display	LED Monochromatic graphical display, 128x64 pixel, with background lighting
Number of LEDs	2 Piece(s)
Type of configuration	Via web browser
Operational controls	Button(s) Via service interface

### Environmental data

Ambient temperature, operation	-35 ... 40 °C
Ambient temperature, storage	-20 ... 70 °C
Relative humidity (non-condensing)	90 %
Extraneous light tolerance on the bar code, max.	2,000 lx

### Certifications

Degree of protection	IP 65
Protection class	III
Certifications	c UL US
Test procedure for EMC in accordance with standard	EN 55022 EN 61000-4-2, -3, -4, -6 EN 61000-6-2
Test procedure for shock in accordance with standard	IEC 60068-2-27, test Ea
Test procedure for continuous shock in accordance with standard	IEC 60068-2-29, test Eb
Test procedure for vibration in accordance with standard	IEC 60068-2-6, test Fc
US patents	US 6,854,649 B

### Classification

Customs tariff number	84719000
eCl@ss 5.1.4	27280102
eCl@ss 8.0	27280102
eCl@ss 9.0	27280102
eCl@ss 10.0	27280102
eCl@ss 11.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550

# Dimensioned drawings

All dimensions in millimeters



## Electrical connection

### Connection 1

Function	Service interface
Type of connection	USB
Connector type	USB 2.0 Standard-A

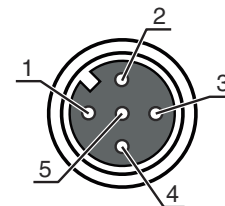
### Connection 2

Function	Signal IN
	Signal OUT
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

## Electrical connection

### Pin Pin assignment

1	VOUT
2	SWIO 1
3	GND
4	SWIO 2
5	FE

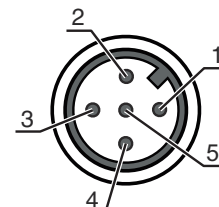


### Connection 3

Function	PWR / SW IN / OUT
Type of connection	Connector
Thread size	M12
Type	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

### Pin Pin assignment

1	VIN
2	SWIO 3
3	GND
4	SWIO 4
5	FE

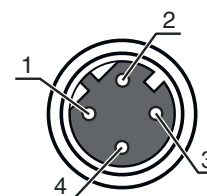


### Connection 4

Function	BUS IN
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

### Pin Pin assignment

1	TD+
2	RD+
3	TD-
4	RD-

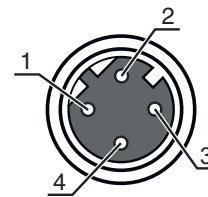


### Connection 5

Function	BUS OUT
Type of connection	Connector
Thread size	M12
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

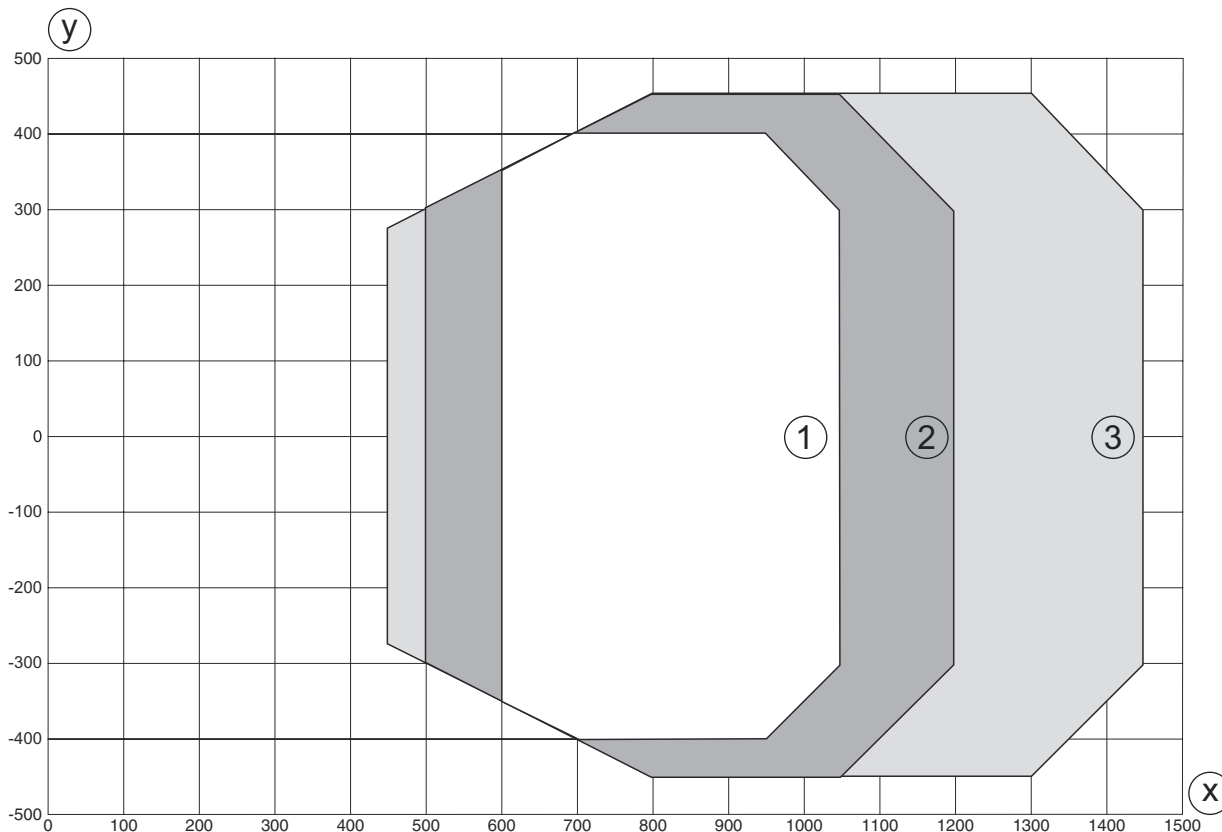
# Electrical connection

Pin	Pin assignment
1	TD+
2	RD+
3	TD-
4	RD-



## Diagrams

Reading field curve - Low Density



y Reading field width [mm]  
 x Reading field distance [mm]

- 1 Module = 0.3 mm: 600 mm - 1050 mm (450 mm depth of field)
- 2 Module = 0.35 mm: 500 mm - 1200 mm (700 mm depth of field)
- 3 Module = 0.5 mm: 450 mm - 1450 mm (1000 mm depth of field)

# Diagrams

## Reading field curve - Low Density



z Reading field height [mm]

x Reading field distance [mm]

- 1 Module = 0.3 mm: 600 mm - 1050 mm (450 mm depth of field)
- 2 Module = 0.35 mm: 500 mm - 1200 mm (700 mm depth of field)
- 3 Module = 0.5 mm: 450 mm - 1450 mm (1000 mm depth of field)

## Operation and display

LED	Display	Meaning
1 PWR	Off	No supply voltage
	Green, flashing	Initialization
	Green, continuous light	Device OK
	Orange, flashing	Service operation
	Orange, continuous light	Reset
	Red, flashing	Device OK, warning set
	Red, continuous light	Device error
	2 NET	Off
Green, flashing		BUS initialization
Green, continuous light		Bus operation ok
Orange, flashing		Service mode
Orange, continuous light		Reset
Red, flashing		Communication error

# Operation and display

LED	Display	Meaning	
2	NET	Red, continuous light	Network error

## Part number code

Part designation: **BCL XXXX YYZ AAA B**

<b>BCL</b>	<b>Operating principle</b> BCL: bar code reader
<b>XXXX</b>	<b>Series/interface (integrated fieldbus technology)</b> 600i: RS 232/RS 422/ RS 485 (multiNet master) 601i: RS 485 (multiNet slave) 604i: PROFIBUS DP 608i: Ethernet 648i: PROFINET
<b>YY</b>	<b>Scanning principle</b> S: line scanner (single line) O: oscillating-mirror scanner (oscillating mirror)
<b>Z</b>	<b>Optics</b> N: High Density (close) M: Medium Density (medium distance) F: Low Density (remote) L: Long Range (very large distances)
<b>AAA</b>	<b>Beam exit</b> 100: lateral 102: front
<b>BB</b>	<b>Special equipment</b> H: with heating

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Accessories

### Connection technology - Connection cables

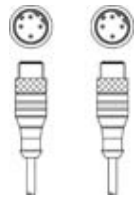
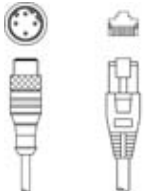
	Part no.	Designation	Article	Description
	50132079	KD U-M12-5A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

### Connection technology - Interconnection cables


	Part no.	Designation	Article	Description
	50107726	KB USB A - USB A	Interconnection cable	Suitable for interface: USB Connection 1: USB Connection 2: USB Shielded: Yes Cable length: 1,800 mm Sheathing material: PVC







## Accessories

	Part no.	Designation	Article	Description
	50137078	KSS ET-M12-4A-M12-4A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Connector, M12, Axial, Male, D-coded, 4 -pin Shielded: Yes Cable length: 1,000 mm Sheathing material: PUR
	50135081	KSS ET-M12-4A-RJ45-A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

## Mounting technology - Other

	Part no.	Designation	Article	Description
	50111224	BT 59	Mounting bracket	Fastening, at system: Groove mounting Mounting bracket, at device: Clampable Material: Metal

## Services

	Part no.	Designation	Article	Description
	S981020	CS30-E-212	Hourly rate for "Configuration"	Details: Compilation of the application data, selection and suggestion of suitable sensor system, drawing prepared as assembly sketch. Conditions: Completed questionnaire or project specifications with a description of the application have been provided. Restrictions: Travel and accommodation charged separately and according to expenditure.
	S981014	CS30-S-110	Start-up support	Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.
	S981019	CS30-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.
	S981021	CS30-V-212	Hourly rate for "Bar code qualification"	Details: REA evaluation with creation of a test report, evaluation of the code quality. Conditions: Original bar codes to be provided by the client.

## Accessories

### Note



🔗 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.