Technical data sheet
Stationary bar code reader
Part no.: 50131499
BCL 648i OM 100 H



Figure can vary

Contents

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

Technical data

Basic data

Series	BCL 600i

Special design

Special design	Heating

Functions

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

Characteristic parameters

MTTF	42.4 years

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	1,000 scans/s
Bar codes per reading gate, max. number	64 Piece(s)

Optical data

Reading distance	400 ... 900 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	0.25 ... 0.35 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

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

Profinet

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

Service interface

Type	USB

USB

Function	Configuration via software
	Service

Connection

Number of connections	5 Piece(s)

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, 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

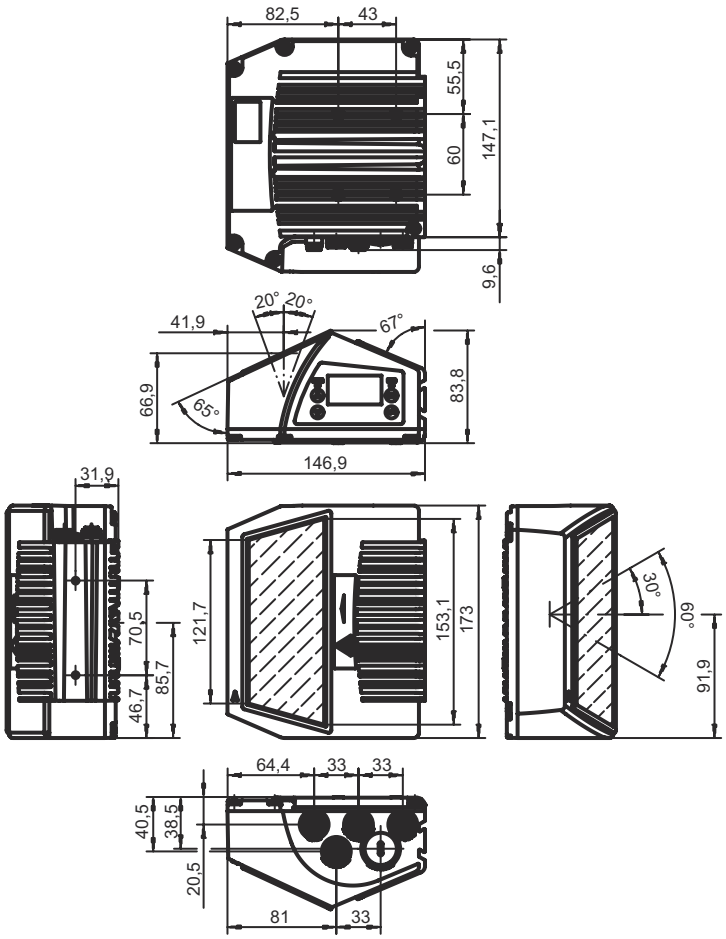
Degree of protection	IP 65
Protection class	III
Certifications	c UL US
Test procedure for EMC in accordance with standard	EN 55022
	EN 61000-4-2, -3, -4, -6
	EN 61000-6-2
Test procedure for shock in accordance with standard	IEC 60068-2-27, test Ea
Test procedure for continuous shock in accordance with 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 8.0	27280102
eCl@ss 9.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

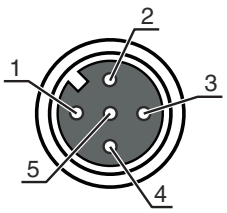
Function	Service interface
Type of connection	USB
Connector type	USB 2.0 Standard-A

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

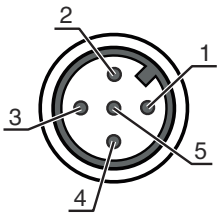
Pin	Pin assignment
1	VOUT
2	SWIO 1
3	GND
4	SWIO 2
5	FE



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

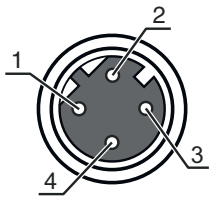
Pin	Pin assignment
1	VIN
2	SWIO 3
3	GND
4	SWIO 4
5	FE



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-

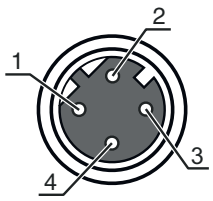


Connection 5

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

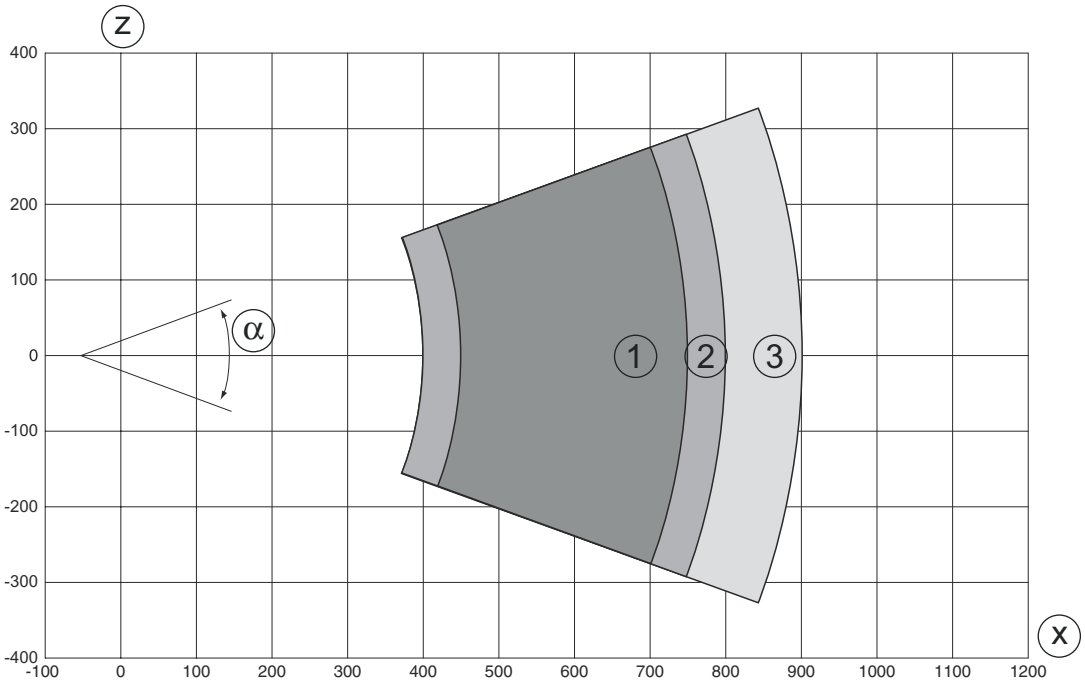
Electrical connection

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



Diagrams

Reading field curve - Medium Density



z Reading field height [mm]
x Reading field distance [mm]

1 Module = 0.25 mm: 450 mm - 750 mm (300 mm depth of field)
2 Module = 0.3 mm: 400 mm - 800 mm (400 mm depth of field)
3 Module = 0.35 mm: 400 mm - 900 mm (500 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	No supply voltage
		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**

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

Note

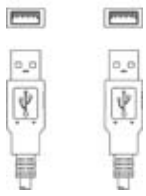
A list with all available device types can be found on the Leuze website at www.leuze.com.

Accessories

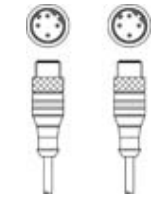
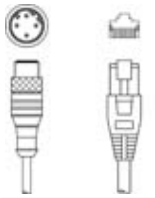
Connection technology - Connection cables

	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

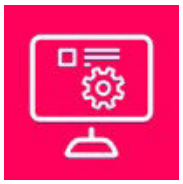
Accessories

	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.