

# **Technical data sheet** Stationary bar code reader

Part no.: 50105457

BCL 500i SN 102 H



#### Contents

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











# **Technical data**



Basic data	
Series	BCL 500i
Special version	
Special version	Heating
Functions	
Functions	Alignment mode
	AutoConfig
	AutoControl
	AutoReflAct
	Code fragment technology
	Heating
	LED indicator
	Reference code comparison
Characteristic parameters	
MTTF	93 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
Securing vote trainel	UPC
Scanning rate, typical Bar codes per reading gate, max.	1,000 scans/s 64 Piece(s)
number	04 1 1000(0)
Optical data	
Reading distance	200 650 mm
Light source	Laser, Red
Wavelength	650 nm
Laser class	2, IEC/EN 60825-1:2007
Transmitted-signal shape	Continuous
Usable opening angle (reading field opening)	60 °
Bar code contrast (PCS)	60 %
Modulus size	0.25 0.5 mm
Reading method	Line scanner
Scanning rate	800 1,200 scans/s
Beam deflection	Via rotating polygon wheel
Light beam exit	Front
Electrical data	
Protective circuit	Polarity reversal protection
Performance data	
Supply voltage U <sub>B</sub>	24 V, DC, -20 20 %
Power consumption, max.	50 W

Inputs/outputs selectable	
Output current, max.	100 mA
Number of inputs/outputs selectable	
Voltage type, outputs	DC
Switching voltage, outputs	Typ. U <sub>B</sub> / 0 V
Voltage type, inputs	DC
Switching voltage, inputs	Typ. U <sub>B</sub> / 0 V
Input current, max.	8 mA
Interface	
Туре	MultiNet Plus, RS 232, RS 422, RS 485
RS 232	
Function	Process
Transmission speed	4,800 115,400 Bd
Data format	Adjustable
Start bit	1
Data bit	7,8
Stop bit	1.2
Parity	None
Transmission protocol	Adjustable
Data encoding	ASCII
RS 422	_
Function	Process
Transmission speed	4,800 115,400 Bd
Data format	Adjustable
Start bit	1
Data bit	7, 8 data bits
Stop bit	1, 2 stop bits
Transmission protocol	Adjustable
Data encoding	ASCII
RS 485	
Function	Process
Transmission speed	57,600 Bd
Data format	Fixed
Start bit	1
Data bit	9 data bits
Stop bit	1 stop bit
Parity	None
Transmission protocol	Fixed
Data encoding	ASCII
Service interface	
Туре	USB
Han	
USB Function	Configuration via coffware
Function	Configuration via software
	Service
Connection	
Number of connections	5 Piece(s)
Connection 1	
Function 1	Service interface
Type of connection	USB
Designation on device	SERVICE
_	USB 2.0 Standard-A
Connector type	USB Z.U Standard-A

# **Technical data**



Connection 2	
Function	Signal IN
	Signal OUT
Type of connection	Connector
Designation on device	SW IN/OUT
Thread size	M12
Туре	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded
Connection 3	
Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Designation on device	PWR
Thread size	M12
Туре	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded
Connection 4	
Function	BUS IN
Type of connection	Connector
Designation on device	HOST / BUS IN
Thread size	M12
Туре	Male
Material	Metal
No. of pins	5 -pin
Encoding	B-coded
Connection 5	
Function	BUS OUT
Type of connection	Connector
Designation on device	BUS OUT
Thread size	M12
Туре	Female
No. of pins	5 -pin

Mo	ch	ani	cal	l data
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Design	Cubic
Dimension (W x H x L)	123.5 mm x 63 mm x 106.5 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Glass
Net weight	1,100 g
Housing color	Red
	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)

#### **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
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

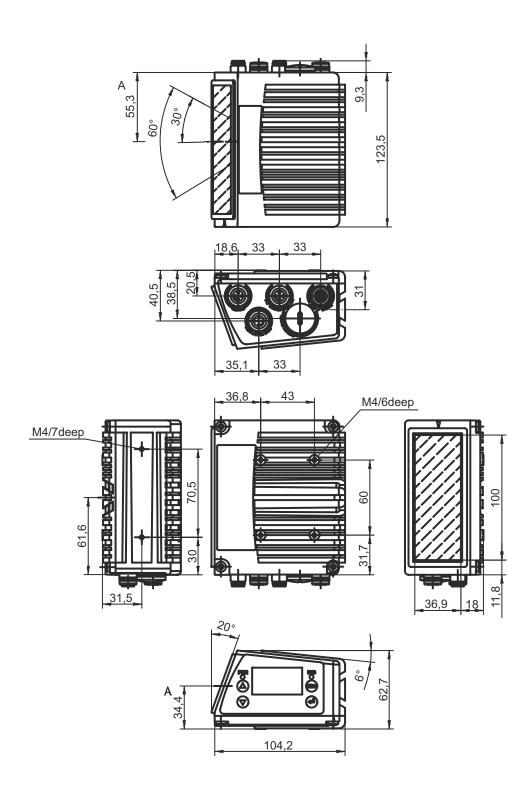
#### Classification

Customs tariff number	84719000
ECLASS 5.1.4	27280102
ECLASS 8.0	27280102
ECLASS 9.0	27280102
ECLASS 10.0	27280102
ECLASS 11.0	27280102
ECLASS 12.0	27280102
ECLASS 13.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550

# **Dimensioned drawings**

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All dimensions in millimeters



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# **Electrical connection**



Connection 1	SERVICE
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Function	Service interface
Type of connection	USB
Connector type	USB 2.0 Standard-A

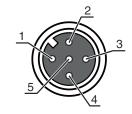
Pin	Pin assignment
1	+5 V DC
2	D Data
3	D+ - Data
4	GND



#### Connection 2 SW IN/OUT

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

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



#### Connection 3 PWR

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

3 5
4

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

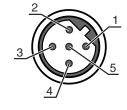




Connection 4	HOST / BUS IN
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Function	BUS IN
Type of connection	Connector
Thread size	M12
Туре	Male
Material	Metal
No. of pins	5 -pin
Encoding	B-coded

Pin	Pin assignment
1	CTS / RX+
2	TxD/Tx-
3	GND_H
4	RTS/TX+
5	RxD/RX-



#### **BUS OUT Connection 5**

Function	BUS OUT
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	5 -pin
Encoding	B-coded

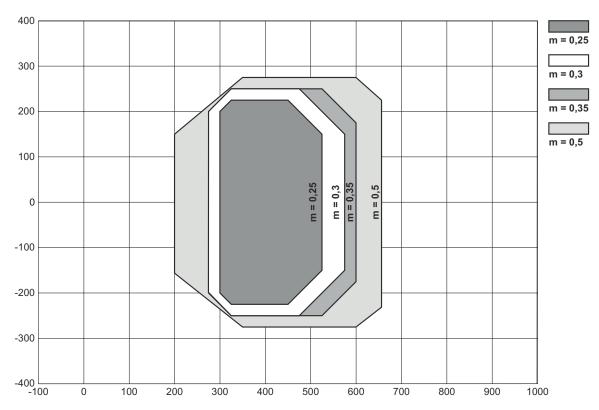
Pin	Pin assignment
1	V CC485
2	RS 485 B
3	GND 485
4	RS 485 A
5	FE



# **Diagrams**



# Reading field curve



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

# Operation and display

LE	D	Display	Meaning
1 PWR	PWR	Off	Device switched off
		Green, flashing	Device ok, initialization phase
		Green, continuous light	Device OK
		Orange, continuous light	Service operation
		Red, flashing	Device OK, warning set
		Red, continuous light	Device error
2 BUS	BUS	Off	No supply voltage
		Green, flashing	Initialization
		Green, continuous light	Bus operation ok
		Red, flashing	Communication error
		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) 500i: RS 232 / RS 422 / RS 485 (multiNet master) 501i: RS 485 (multiNet slave) 504i: PROFIBUS DP 508i: EtherNet TCP/IP, UDP 548i: PROFINET RT 558i: EtherNet/IP
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
В	Special equipment H: With heating

#### Note



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

#### **Notes**



#### Observe intended use!



- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- b Only use the product in accordance with its intended use.

#### ATTENTION! LASER RADIATION - CLASS 2 LASER PRODUCT



#### Do not stare into beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 2 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.

- 🔖 Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ♥ Do not point the laser beam of the device at persons!
- 🖖 Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- 🔖 CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- Observe the applicable statutory and local laser protection regulations.
- $\$  The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.

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#### **Notes**



#### **NOTE**



#### Affix laser information and warning signs!

Laser information and warning signs are affixed to the device. In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages.

- \( \) Affix the laser information sheet to the device in the language appropriate for the place of use. When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" note.
- Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
- Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

### **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 Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC

# Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
 0.0	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
	50135254	KDS PB-M12-4A- M12-4A-P3-050	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 5-pin Connection 2: Connector, M12, Axial, Male, B-coded, 4-pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

# Connection technology - Terminating resistors

Part no.	Designation	Article	Description
50038539	TS 02-4-SA	Terminator plug	Suitable for: MultiNet Plus, PROFIBUS DP Function: Bus termination Connection 1: Connector, M12, Axial, Male, B-coded, 4 -pin

### **Accessories**



# 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 Shock absorber: No

# Services

	Part no.	Designation	Article	Description
<b>₽</b>	S981020	CS30-E-212	Hourly rate	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.
<del>      </del>	S981021	CS30-V-212	Hourly rate	Details: REA evaluation with creation of a test report, evaluation of the code quality.  Conditions: Original bar codes to be provided by the client.

#### Note



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