

Technical data sheet Stationary bar code reader

Part no.: 50116339

BCL 304i R1 M 102



Contents

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Technical data



Series	BCL 300i
Functions	
Functions	Alignment mode
	AutoConfig
	AutoControl
	AutoReflAct
	Code fragment technology
	LED indicator
	Reference code comparison
Characteristic parameters	
MTTF	110 years
Read data	
	2/5 Interleaved
Code types, readable	
	Codabar Code 128
	Code 39
	Code 93
	EAN 8/13
	GS1 Databar Expanded
	GS1 Databar Limited
	GS1 Databar Omnidirectional
	UPC
Bar codes per reading gate, max.	1,000 scans/s 64 Piece(s)
Bar codes per reading gate, max. number	
Bar codes per reading gate, max. number Optical data	
Bar codes per reading gate, max. number Optical data Reading distance	64 Piece(s)
Bar codes per reading gate, max. number Optical data Reading distance Light source	64 Piece(s) 60 320 mm
Bar codes per reading gate, max. number Optical data Reading distance Light source Navelength	64 Piece(s) 60 320 mm Laser, Red
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class	64 Piece(s) 60 320 mm Laser, Red 655 nm
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Jsable opening angle (reading field	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014
Bar codes per reading gate, max. number Dptical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Jsable opening angle (reading field opening)	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous
Bar codes per reading gate, max. number Dptical data Reading distance Light source Wavelength Laser class Fransmitted-signal shape Jsable opening angle (reading field opening) Modulus size	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 °
Bar codes per reading gate, max. humber Dptical data Reading distance Light source Wavelength Laser class Fransmitted-signal shape Jsable opening angle (reading field ppening) Modulus size Reading method	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner
Bar codes per reading gate, max. number Optical data Reading distance Light source Vavelength Laser class Fransmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm
Bar codes per reading gate, max. humber Defical data Reading distance Light source Wavelength Laser class Fransmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Fransmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s)
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm
Scanning rate, typical Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 400 mm	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 300 mm	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm 24 mm
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm 24 mm
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 400 mm Electrical data Protective circuit	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm 24 mm 35 mm
Bar codes per reading gate, max. number Optical data Reading distance Light source Wavelength Laser class Transmitted-signal shape Usable opening angle (reading field opening) Modulus size Reading method Beam deflection Light beam exit Raster (number of lines) Scanning field at scanner distance of 100 mm Scanning field at scanner distance of 200 mm Scanning field at scanner distance of 300 mm Scanning field at scanner distance of 400 mm Electrical data	64 Piece(s) 60 320 mm Laser, Red 655 nm 1, IEC/EN 60825-1:2014 Continuous 60 ° 0.2 0.5 mm Raster scanner Via rotating polygon wheel Front 8 Piece(s) 14 mm 24 mm 35 mm

	00 1
Output current, max.	60 mA
Number of inputs/outputs selectable	
Input current, max.	8 mA
Interface	
Туре	PROFIBUS DP
PROFIBUS DP	
Function	Process
Classification	V1
Transmission speed	0.0096 12 Mbit/s
Service interface	
Туре	USB 2.0
USB	
Function	Service
Connection	
Number of connections	1 Piece(s)
Connection 1	DUIO IN
Function	BUS IN
	BUS OUT
	Connection to device
	Data interface
	PWR / SW IN / OUT
	Service interface
Type of connection	Plug connector, It is essential to use a connection unit when commissioning the device.
No. of pins	32 -pin
Туре	Male
Mechanical data	
Design	Cubic
Dimension (W x H x L)	95 mm x 44 mm x 68 mm
Housing material	Metal
Metal housing	Diecast aluminum
Lens cover material	Glass
Net weight	270 g
Housing color	Red
riousing color	Silver
Type of feetening	
Type of fastening	Dovetail grooves
	Fastening on back
	Via optional mounting device
Operation and display	
Type of display	LED
	2 Piece(s)
Number of LEDs	Via web browser
Number of LEDs Type of configuration	via web blowser
	via web blowser
Type of configuration	0 40 °C
Type of configuration Environmental data	

Inputs/outputs selectable

Technical data



Certifications

Degree of protection	IP 65
Protection class	III
Approvals	c UL US
Test procedure for EMC in accordance	EN 55022
with standard	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

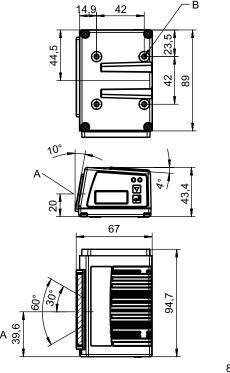
Classification

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
ECLASS 14.0	27280102
ECLASS 15.0	27280102
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
ETIM 9.0	EC002550
ETIM 10.0	EC002550

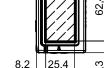
Dimensioned drawings

Leuze

All dimensions in millimeters



- Optical axis
- M4 thread (5 mm deep)



Electrical connection

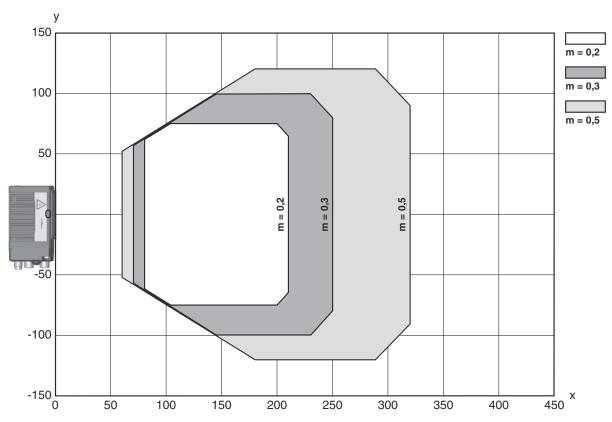
Connection 1

Function	BUS IN
	BUS OUT
	Connection to device
	Data interface
	PWR / SW IN / OUT
	Service interface
Type of connection	Plug connector
Type of connection	It is essential to use a connection unit when commissioning the device.
No. of pins	32 -pin
Туре	Male

Diagrams



Reading field curve



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

Operation and display

LED	Display	Meaning
1 PWR	Green, flashing	Device ok, initialization phase
	Green, continuous light	Device OK
	Green, briefly off - on	Reading successful
	Green, briefly off - briefly red - on	Reading not successful
	Orange, continuous light	Service mode
	Red, flashing	Device OK, warning set
	Red, continuous light	Error, device error
2 BUS	Green, flashing	Initialization
	Green, continuous light	Bus operation ok
	Red, flashing	Communication error
	Red, continuous light	Bus error

Part number code



Part designation: BCL XXXX YYZ AAA BB CCCC

BCL	Operating principle BCL: bar code reader
xxxx	Series/interface (integrated fieldbus technology) 300i: RS 232 / RS 422 (stand-alone) 301i: RS 485 (multiNet slave) 304i: PROFIBUS DP 308i: EtherNet TCP/IP, UDP 338i: EtherCAT 348i: PROFINET RT 358i: EtherNet/IP
YY	Scanning principle S: line scanner (single line) R1: line scanner (raster) 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) J: ink-jet (depending on the application)
AAA	Beam exit 100: lateral 102: front
ВВ	Special equipment D: With display H: with heating DH: optionally with display and heating P: plastic exit window
cccc	Functions F007: optimized process data structure F099: OPC-UA function

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.
- Only use the product in accordance with its intended use.

ATTENTION! LASER RADIATION - CLASS 1 LASER PRODUCT



The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of laser class 1 and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

- 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.

We reserve the right to make technical info@leuze.com • www.leuze.com changes

Accessories



Connection technology - Connection cables

	Part no.	Designation	Article	Description
Y	50135243	KD PB-M12-4A-P3- 050	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Female, B-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PUR
	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
V	50135248	KS PB-M12-4A-P3- 050	Connection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PUR

Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
	50117011	KB USB A - USB miniB	Service line	Suitable for interface: USB Connection 1: USB Connection 2: USB Shielded: Yes Cable length: 1,500 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

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Accessories



Connection technology - Connection boxes

Part no.	Designation	Article	Description
50116465 *	MK 304	Connection unit	Suitable for: BCL 304i, BPS 304i Interface: PROFIBUS DP Number of connections: 4 Piece(s) Connection: Terminal
50116470 *	MS 304	Connection unit	Suitable for: BCL 304i, BPS 304i Interface: PROFIBUS DP Number of connections: 4 Piece(s) Connection: Connector, M12

^{*} Necessary accessories, please order separately

Mounting technology - Mounting brackets

Part no.	Designation	Article	Description
50121433	BT 300 W	Mounting device	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Adjustable Material: Metal

Mounting technology - Rod mounts

Part no.	Designation	Article	Description
50121435	BT 56 - 1	Mounting device	Functions: Static applications Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, For 14 mm rod, For 16 mm rod Mounting bracket, at device: Clampable Material: Metal Tightening torque of the clamping jaws: 8 N·m

Mounting technology - Other

Part no.	Designation	Article	Description
50124941	BTU 0300M-W	Mounting device	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, Groove mounting, Suited for M4 screws Material: Metal Shock absorber: No

Accessories



Reflective tapes for standard applications

Part no.	Designation	Article	Description
50106119	REF 4-A-100x100	Reflective tape	Design: Rectangular Reflective surface: 100 mm x 100 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive

Services

	Part no.	Designation	Article	Description
р В	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.
	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.
	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.
 	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.