

## Technical data sheet

### Stationary bar code reader

Part no.: 50135057

BCL 338i R1 M 100 D



For illustration purposes only

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EtherCAT



UK  
CA

## Technical data

### Basic 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

|   |                             |
|---|-----------------------------|
| Code types, readable                    | 2/5 Interleaved             |
|   | Codabar                     |
|   | Code 128                    |
|   | Code 39                     |
|   | Code 93                     |
|   | EAN 8/13                    |
|   | 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                             | 30 ... 290 mm   |
| Light source                                 | Laser, Red  |
| Wavelength                                   | 655 nm  |
| Laser class                                  | 1, IEC/EN 60825-1:2014  |
| Transmitted-signal shape                     | Continuous  |
| Usable opening angle (reading field opening) | 60 °  |
| Modulus size                                 | 0.2 ... 0.5 mm  |
| Reading method                               | Raster scanner with deflecting mirror                         |
| Beam deflection                              | By means of rotating polygon mirror wheel + deflecting mirror |
| Light beam exit                              | Lateral with deflecting mirror                                |
| Raster (number of lines)                     | 8 Piece(s)  |
| Scanning field at scanner distance of 100 mm | 17 mm   |
| Scanning field at scanner distance of 200 mm | 27 mm   |
| Scanning field at scanner distance of 300 mm | 38 mm   |
| Scanning field at scanner distance of 400 mm | 48 mm   |

### Electrical data

|                               |                              |
|-------------------------------|------------------------------|
| Protective circuit            | Polarity reversal protection |
| Performance data              |                              |
| Supply voltage U <sub>B</sub> | 18 ... 30 V, DC              |
| Power consumption, max.       | 4.5 W                        |

### Inputs/outputs selectable

|                                     |            |
|-------------------------------------|------------|
| Output current, max.                | 60 mA      |
| Number of inputs/outputs selectable | 2 Piece(s) |
| Input current, max.                 | 8 mA       |

### Interface

|      |          |
|------|----------|
| Type | EtherCAT |
|------|----------|

### EtherCAT

|                       |                       |
|-----------------------|-----------------------|
| Function              | Process               |
| Transmission protocol | EtherCAT, CoE and EoE |

### Service interface

|      |         |
|------|---------|
| Type | USB 2.0 |
|------|---------|

### USB

|          |                            |
|----------|----------------------------|
| Function | Configuration via software |
|          | Service                    |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|          |                      |
|----------|----------------------|
| 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 |
| Type        | Male    |

### Mechanical data

|                       |                              |
|-----------------------|------------------------------|
| Design                | Cubic                        |
| Dimension (W x H x L) | 103 mm x 44 mm x 96 mm       |
| Housing material      | Metal                        |
| Metal housing         | Diecast aluminum             |
| Lens cover material   | Glass                        |
| Net weight            | 350 g                        |
| Housing color         | Red                          |
|                       | Silver                       |
| Type of fastening     | Dovetail grooves             |
|                       | Fastening on back            |
|                       | Via optional mounting device |

### Operation and display

|                       |  |
|-----------------------|--|
| Type of display       | LED  |
|                       | Monochromatic graphic display, 128 x 32 pixels |
| Number of LEDs        | 2 Piece(s)                                     |
| Type of configuration | Via web browser                                |
| Operational controls  | Button(s)                                      |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | 0 ... 40 °C   |
| Ambient temperature, storage       | -20 ... 70 °C |
| Relative humidity (non-condensing) | 0 ... 90 %    |

## Technical data

### Certifications

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

All dimensions in millimeters



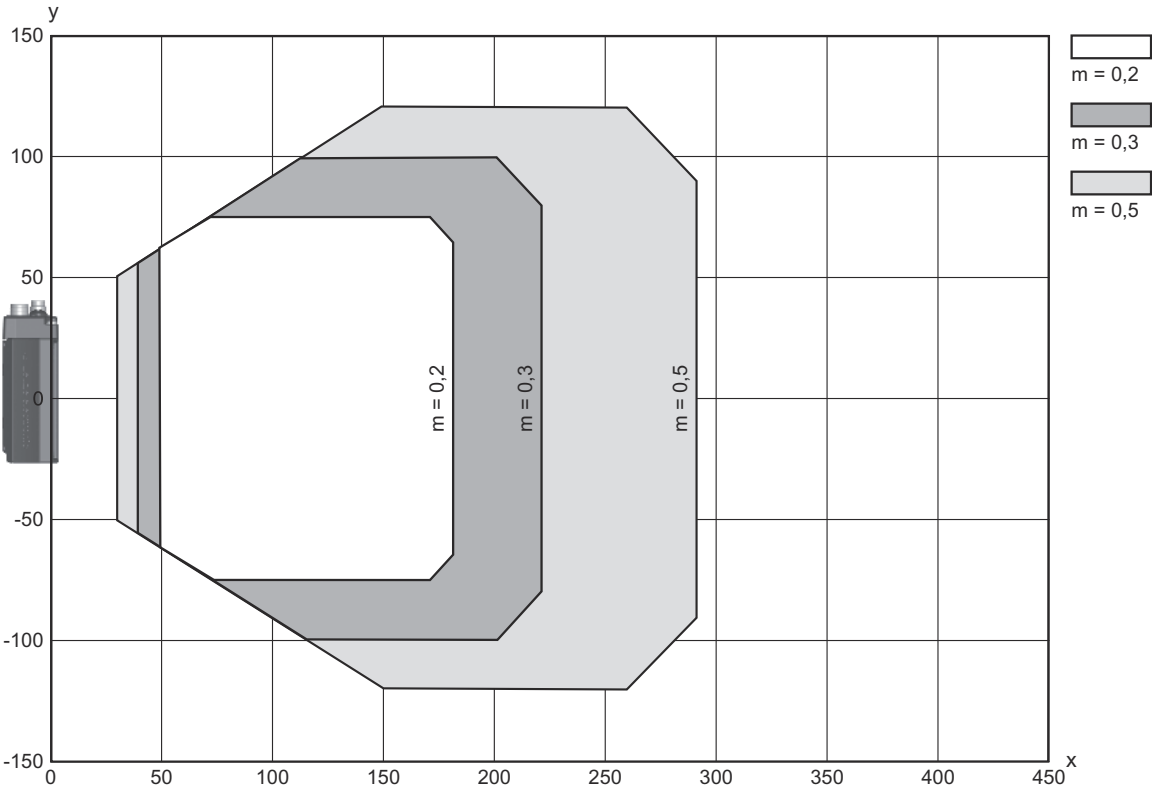
Electrical connection

Connection 1

|                    |   |
|--------------------|---|
| Function           | BUS IN<br>BUS OUT<br>Connection to device<br>Data interface<br>PWR / SW IN / OUT<br>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   |
| Type               | Male  |

Diagrams

Reading field curve



x Reading field distance [mm]  
y 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  | <b>Operating principle</b><br>BCL: bar code reader  |
| XXXX | <b>Series/interface (integrated fieldbus technology)</b><br>300i: RS 232 / RS 422 (stand-alone)<br>301i: RS 485 (multiNet slave)<br>304i: PROFIBUS DP<br>308i: EtherNet TCP/IP, UDP<br>338i: EtherCAT<br>348i: PROFINET RT<br>358i: EtherNet/IP |
| YY   | <b>Scanning principle</b><br>S: line scanner (single line)<br>R1: line scanner (raster)<br>O: oscillating-mirror scanner (oscillating mirror)   |
| Z    | <b>Optics</b><br>N: High Density (close)<br>M: Medium Density (medium distance)<br>F: Low Density (remote)<br>L: Long Range (very large distances)<br>J: ink-jet (depending on the application)   |
| AAA  | <b>Beam exit</b><br>100: lateral<br>102: front  |
| BB   | <b>Special equipment</b><br>D: With display<br>H: with heating<br>DH: optionally with display and heating<br>P: plastic exit window   |
| CCCC | <b>Functions</b><br>F007: optimized process data structure<br>F099: OPC-UA function   |

Note



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

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.

## 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<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC                                    |
|   | 50135074 | KS ET-M12-4A-P7-050 | Connection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5.000 mm<br>Sheathing material: PUR |



### Connection technology - Interconnection cables

|  | Part no. | Designation                 | Article               | Description  |
|--|----------|-----------------------------|-----------------------|--|
|   | 50117011 | KB USB A - USB miniB        | Service line          | Suitable for interface: USB<br>Connection 1: USB<br>Connection 2: USB<br>Shielded: Yes<br>Cable length: 1,500 mm<br>Sheathing material: PVC  |
|  | 50137078 | KSS ET-M12-4A-M12-4A-P7-050 | Interconnection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin<br>Connection 2: Connector, M12, Axial, Male, D-coded, 4 -pin<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |
|  | 50135081 | KSS ET-M12-4A-RJ45-A-P7-050 | Interconnection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin<br>Connection 2: RJ45<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR   |

### Connection technology - Connection boxes

|  | Part no.   | Designation | Article         | Description   |
|--|------------|-------------|-----------------|---|
|  | 50134929 * | ME 338 103  | Connection unit | Suitable for: BCL 338i, BPS 338i<br>Interface: EtherCAT<br>Number of connections: 4 Piece(s)<br>Connection: Cable with connector, M12, 900 mm |
|  | 50134927 * | ME 338 104  | Connection unit | Suitable for: BCL 338i<br>Interface: EtherCAT<br>Number of connections: 5 Piece(s)<br>Connection: Cable with connector, M12, 900 mm           |
|  | 50134928 * | ME 338 214  | Connection unit | Suitable for: BCL 338i<br>Interface: EtherCAT<br>Number of connections: 5 Piece(s)<br>Connection: Cable with connector, M12, 600 mm           |

## Accessories

|   | Part no.   | Designation | Article         | Description  |
|---|------------|-------------|-----------------|--|
| <br> | 50134931 * | MK 338      | Connection unit | Suitable for: BCL 338i, BPS 338i<br>Interface: EtherCAT<br>Number of connections: 4 Piece(s)<br>Connection: Terminal       |
|   | 50134930 * | MS 338      | Connection unit | Suitable for: BCL 338i, BPS 338i<br>Interface: EtherCAT<br>Number of connections: 4 Piece(s)<br>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<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Adjustable<br>Material: Metal |

## Mounting technology - Rod mounts

|  | Part no. | Designation | Article         | Description   |
|--|----------|-------------|-----------------|---|
|  | 50121435 | BT 56 - 1   | Mounting device | Functions: Static applications<br>Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, For 14 mm rod, For 16 mm rod<br>Mounting bracket, at device: Clampable<br>Material: Metal<br>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<br>Mounting bracket, at device: Clampable, Groove mounting, Suited for M4 screws<br>Material: Metal<br>Shock absorber: No |



## Accessories

### Reflective tapes for standard applications

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

## Services

|  | Part no. | Designation | Article          | Description   |
|--|----------|-------------|------------------|---|
|    | S981020  | CS30-E-212  | Hourly rate      | Details: Compilation of the application data, selection and suggestion of suitable sensor system, drawing prepared as assembly sketch.<br>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.<br>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.<br>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.<br>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.