

## Technical data sheet

### Stationary bar code reader

Part no.: 50129662

BCL 900i SM 102



For illustration purposes only

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- Technical data
- Dimensioned drawings
- Electrical connection
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- Operation and display
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CDRH **RS**<sub>232</sub> **RS**<sub>422</sub>

Ethernet



## Technical data

### Basic data

|        |          |
|--------|----------|
| Series | BCL 900i |
|--------|----------|

### Functions

|           |                          |
|-----------|--------------------------|
| Functions | Alignment mode           |
|           | AutoConfig               |
|           | Code fragment technology |
|           | LED indicator            |

### Read data

|                        |                 |
|------------------------|-----------------|
| Code types, readable   | 2/5 Interleaved |
|                        | Codabar         |
|                        | Code 128        |
|                        | Code 39         |
|                        | Code 93         |
|                        | EAN 128         |
|                        | EAN 8/13        |
|                        | EAN Addendum    |
|                        | UPC             |
| Scanning rate, typical | 1,000 scans/s   |

### Optical data

|                                              |                            |
|----------------------------------------------|----------------------------|
| Reading distance                             | 450 ... 1,700 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                                 | 0.33 ... 0.5 mm            |
| Reading method                               | Line scanner               |
| Scanning rate                                | 1,000 ... 1,000 scans/s    |
| Beam deflection                              | Via rotating polygon wheel |
| Light beam exit                              | Front                      |

### Electrical data

|                         |                              |
|-------------------------|------------------------------|
| Protective circuit      | Polarity reversal protection |
| <b>Performance data</b> |                              |
| Supply voltage $U_B$    | 10 ... 30 V, DC              |
| Power consumption, max. | 10 W                         |

### Inputs

|                                    |                  |
|------------------------------------|------------------|
| Number of digital switching inputs | 3 Piece(s)       |
| <b>Switching inputs</b>            |                  |
| Voltage type                       | DC               |
| Switching voltage                  | Typ. $U_B$ / 0 V |
| <b>Digital switching input 3</b>   |                  |
| Function                           | Encoder input    |

### Outputs

|                                     |                  |
|-------------------------------------|------------------|
| Number of digital switching outputs | 2 Piece(s)       |
| <b>Switching outputs</b>            |                  |
| Voltage type                        | DC               |
| Switching voltage                   | Typ. $U_B$ / 0 V |

### Switching output 1

|                     |                       |
|---------------------|-----------------------|
| Switching element   | Transistor, NPN       |
| Switching principle | Light/dark switchable |

### Switching output 2

|                     |                       |
|---------------------|-----------------------|
| Switching element   | Transistor, NPN       |
| Switching principle | Light/dark switchable |

### Interface

|      |                          |
|------|--------------------------|
| Type | RS 232, RS 422, Ethernet |
|------|--------------------------|

#### RS 232

|                       |                      |
|-----------------------|----------------------|
| Function              | Process              |
| Transmission speed    | 1,200 ... 115,200 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    | 1,200 ... 115,200 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                |

#### Ethernet

|                       |              |
|-----------------------|--------------|
| Architecture          | Client       |
|                       | Server       |
| Address assignment    | DHCP         |
| Transmission speed    | 10 Mbit/s    |
|                       | 100 Mbit/s   |
| Function              | Process      |
|                       | Service      |
| Switch functionality  | Integrated   |
| Transmission protocol | TCP/IP , UDP |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 4 Piece(s) |
|-----------------------|------------|

#### Connection 1

|                       |                |
|-----------------------|----------------|
| Function              | Voltage supply |
| Type of connection    | Connector      |
| Designation on device | POWER          |
| Thread size           | M12            |
| Type                  | Male           |
| Material              | Metal          |
| No. of pins           | 4 -pin         |
| Encoding              | A-coded        |

## Technical data

### Connection 2

|                       |                                  |
|-----------------------|----------------------------------|
| Function              | Internal communication interface |
| Type of connection    | Connector                        |
| Designation on device | I/O                              |
| Thread size           | M12                              |
| Type                  | Male                             |
| Material              | Metal                            |
| No. of pins           | 17 -pin                          |
| Encoding              | A-coded                          |

### Connection 3

|                       |                |
|-----------------------|----------------|
| Function              | Data interface |
| Type of connection    | Connector      |
| Designation on device | ETH1           |
| Thread size           | M12            |
| Type                  | Female         |
| Material              | Metal          |
| No. of pins           | 4 -pin         |
| Encoding              | D-coded        |

### Connection 4

|                       |                |
|-----------------------|----------------|
| Function              | Data interface |
| Type of connection    | Connector      |
| Designation on device | ETH2           |
| Thread size           | M12            |
| Type                  | Female         |
| Material              | Metal          |
| No. of pins           | 4 -pin         |
| Encoding              | D-coded        |

### Mechanical data

|                       |                              |
|-----------------------|------------------------------|
| Design                | Cubic                        |
| Dimension (W x H x L) | 216 mm x 96 mm x 127 mm      |
| Housing material      | Metal                        |
| Metal housing         | Diecast aluminum             |
| Lens cover material   | Glass                        |
| Net weight            | 2,000 g                      |
| Housing color         | Red                          |
|                       | Silver                       |
| Type of fastening     | Via optional mounting device |

### Operation and display

|                       |                 |
|-----------------------|-----------------|
| Type of display       | LED             |
| Number of LEDs        | 5 Piece(s)      |
| Type of configuration | Via web browser |
| Operational controls  | Button(s)       |

### Environmental data

|                                                  |                |
|--------------------------------------------------|----------------|
| Ambient temperature, operation                   | 0 ... 50 °C    |
| Ambient temperature, storage                     | -20 ... +70 °C |
| Relative humidity (non-condensing)               | 0 ... 90 %     |
| Extraneous light tolerance on the bar code, max. | 30,000 lx      |

### Certifications

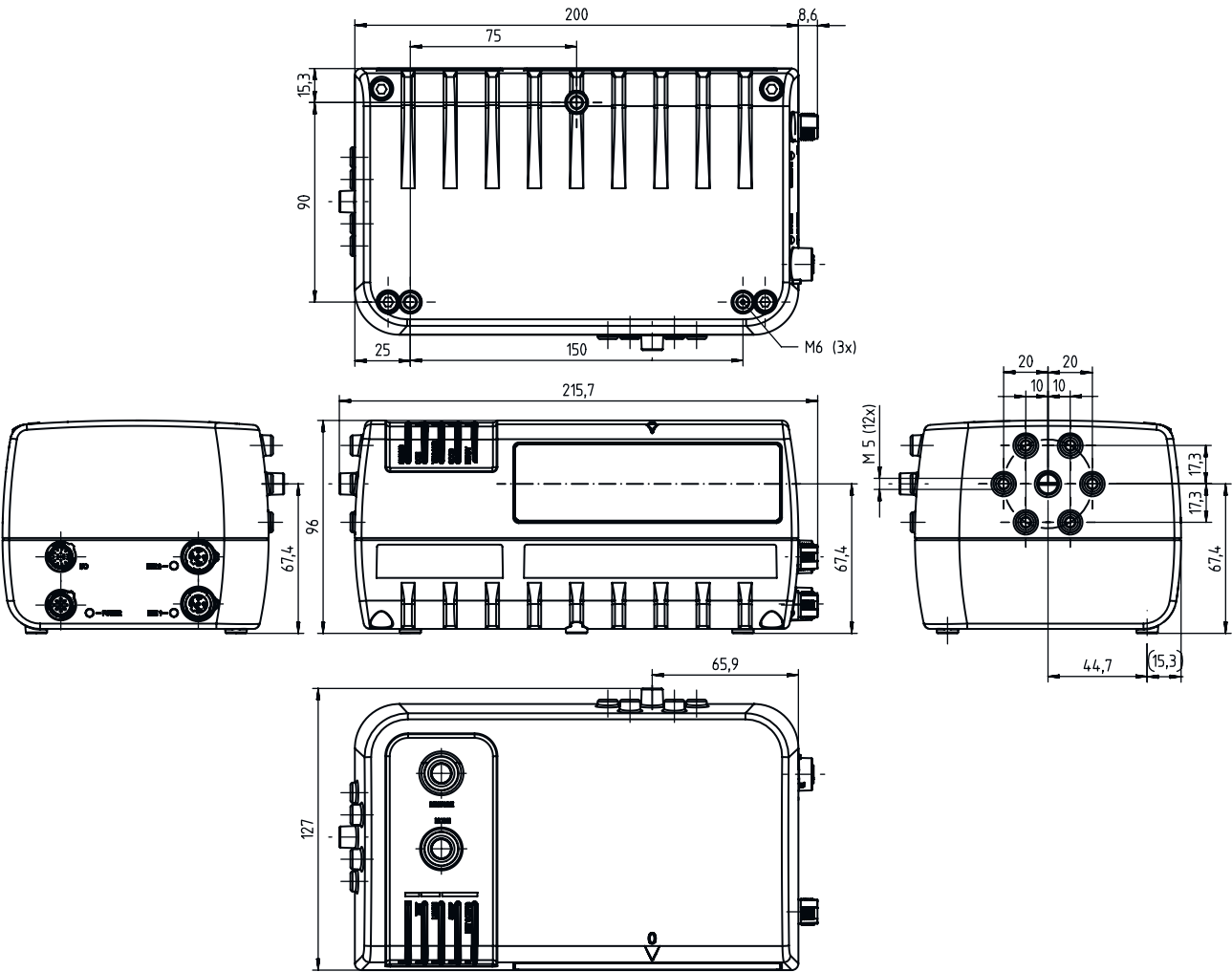
|                                                                 |                                      |
|-----------------------------------------------------------------|--------------------------------------|
| Degree of protection                                            | IP 65                                |
| Approvals                                                       | c CSA 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

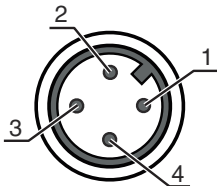
All dimensions in millimeters



Electrical connection

| Connection 1       |                | POWER |
|--------------------|----------------|-------|
| Function           | Voltage supply |       |
| Type of connection | Connector      |       |
| Thread size        | M12            |       |
| Type               | Male           |       |
| Material           | Metal          |       |
| No. of pins        | 4 -pin         |       |
| Encoding           | A-coded        |       |

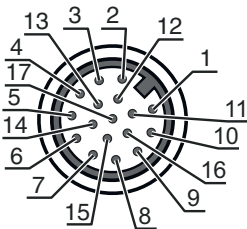
| Pin | Pin assignment |
|-----|----------------|
| 1   | VIN            |
| 2   | n.c.           |
| 3   | GND            |
| 4   | n.c.           |
| 5   | FE             |



Electrical connection

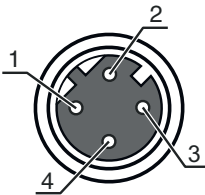
| Connection 2       |                                  | I/O |
|--------------------|----------------------------------|-----|
| Function           | Internal communication interface |     |
| Type of connection | Connector                        |     |
| Thread size        | M12                              |     |
| Type               | Male                             |     |
| Material           | Metal                            |     |
| No. of pins        | 17 -pin                          |     |
| Encoding           | A-coded                          |     |

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | GND            |
| 3   | ENB            |
| 4   | Tx             |
| 5   | IN 1           |
| 6   | IN 1           |
| 7   | RES            |
| 8   | OUT 2          |
| 9   | OUT 1          |
| 10  | CTS/RX-        |
| 11  | RX / RX+       |
| 12  | RTS/TX-        |
| 13  | ENA            |
| 14  | RX             |
| 15  | IN 2           |
| 16  | IN 2           |
| 17  | TX / TX+       |



| Connection 3       |                | ETH1 |
|--------------------|----------------|------|
| Function           | Data interface |      |
| Type of connection | Connector      |      |
| Thread size        | M12            |      |
| Type               | Female         |      |
| Material           | Metal          |      |
| No. of pins        | 4 -pin         |      |
| Encoding           | D-coded        |      |

| Pin | Pin assignment |
|-----|----------------|
| 1   | Tx+            |
| 2   | Rx+            |
| 3   | Tx-            |
| 4   | Rx-            |



| Connection 4       |                | ETH2 |
|--------------------|----------------|------|
| Function           | Data interface |      |
| Type of connection | Connector      |      |
| Thread size        | M12            |      |
| Type               | Female         |      |
| Material           | Metal          |      |
| No. of pins        | 4 -pin         |      |
| Encoding           | D-coded        |      |

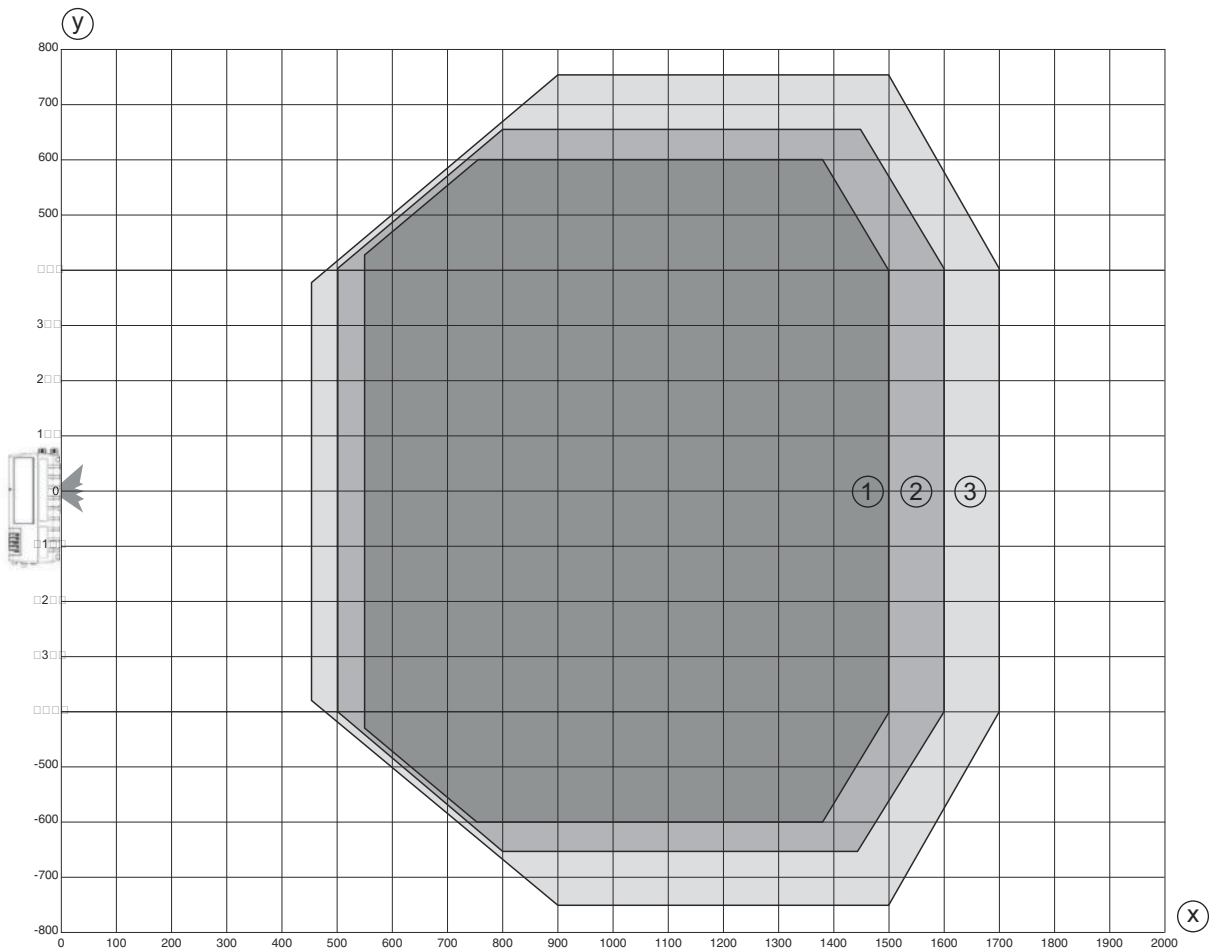
Electrical connection

| Pin | Pin assignment |
|-----|----------------|
| 1   | Tx+            |
| 2   | Rx+            |
| 3   | Tx-            |
| 4   | Rx-            |



Diagrams

Reading field curve - Medium Density



- x Reading field distance [mm]
- y Reading field width [mm]
- 1 Module: 0.33 mm / 13 mil
- 2 Module: 0.38 mm / 15 mil
- 3 Module: 0.50 mm / 20 mil

Operation and display

| LED | Display | Meaning |                                            |
|-----|---------|---------|--------------------------------------------|
| 1   | READY   | Green   | Operational readiness                      |
| 2   | GOOD    | Green   | Reading successful                         |
| 3   | TRIGGER | Yellow  | Reading gate active                        |
| 4   | COM     | Yellow  | Active communication with serial interface |

## Operation and display

| LED      | Display | Meaning           |
|----------|---------|-------------------|
| 5 STATUS | Red     | No reading result |

## Part number code

Part designation: BCL XXXX YYZ AAA B

|      |                                                                                                 |
|------|-------------------------------------------------------------------------------------------------|
| BCL  | <b>Operating principle</b><br>BCL: bar code reader                                              |
| XXXX | <b>Series/interface (integrated fieldbus technology)</b><br>900i: RS 232 / RS 422 / EtherNet IP |
| YY   | <b>Scanning principle</b><br>S: line scanner (single line)                                      |
| Z    | <b>Optics</b><br>N: High Density (close)<br>M: Medium Density (medium distance)                 |
| AAA  | <b>Beam exit</b><br>102: front                                                                  |

### 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 unit

|                                                                                    | Part no.   | Designation | Article                 | Description                                                                         |
|------------------------------------------------------------------------------------|------------|-------------|-------------------------|-------------------------------------------------------------------------------------|
|  | 50129663 * | MA 900      | Modular connection unit | Interface: RS 232, RS 422<br>Connections: 1 Piece(s)<br>Degree of protection: IP 65 |

\* Necessary accessories, please order separately

### Connection technology - Interconnection cables

|                                                                                    | Part no. | Designation | Article               | Description                                                                                                                                            |
|------------------------------------------------------------------------------------|----------|-------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50131531 | KB 900-1000 | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 17 -pin<br>Connection 2: Sub-HD, Axial, Male, 25 -pin<br>Shielded: Yes<br>Cable length: 1,000 mm |
|  | 50131529 | KB 900-3000 | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 17 -pin<br>Connection 2: Sub-HD, Axial, Male, 25 -pin<br>Shielded: Yes<br>Cable length: 3,000 mm |

Accessories

Mounting technology - Mounting brackets

|                                                                                   | Part no.    | Designation | Article   | Description                                                                                                                                                                              |
|-----------------------------------------------------------------------------------|-------------|-------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50131534 ** | BT 900      | Fastening | 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: Rigid<br>Material: Metal |

\*\* Included in delivery contents

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