

## Technical data sheet

### Stationary 2D-code reader

Part no.: 50146309  
DCR 202i FIX-L1-102-R3-V



For illustration purposes only

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



**RS232**

**RS422**

**Ethernet**



**UK  
CA**



## Technical data

### Basic data

|        |                       |
|--------|-----------------------|
| Series | DCR 200i              |
| Chip   | CMOS (Global Shutter) |

### Functions

|                    |                     |
|--------------------|---------------------|
| Software functions | Reading of 1D codes |
|                    | Reading of 2D codes |

### Read data

|                      |                             |
|----------------------|-----------------------------|
| Code types, readable | 2/5 Interleaved             |
|                      | Aztec                       |
|                      | Codabar                     |
|                      | Code 128                    |
|                      | Code 32                     |
|                      | Code 39                     |
|                      | Code 93                     |
|                      | Data Matrix Code            |
|                      | EAN 128                     |
|                      | EAN 8/13                    |
|                      | GS1 Databar                 |
|                      | GS1 Databar Omnidirectional |
|                      | GS1 Databar QR code         |
|                      | GS1 Databar Stacked         |
|                      | PDF417                      |
|                      | Pharma Code                 |
|                      | QR code                     |
|                      | UPC                         |

### Optical data

|                               |                |
|-------------------------------|----------------|
| Reading distance              | 50 ... 800 mm  |
| Light source                  | LED, Red       |
| Transmitted-signal shape      | Pulsed         |
| Camera resolution, horizontal | 1,280 px       |
| Camera resolution, vertical   | 960 px         |
| Modulus size                  | 0.35 ... 1 mm  |
| Electronic shutter speed      | 0.068 ... 5 ms |
| Camera type                   | Monochrome     |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | Short circuit protected      |

#### Performance data

|                           |                 |
|---------------------------|-----------------|
| Supply voltage $U_B$      | 18 ... 30 V, DC |
| Average power consumption | 8 W             |

#### Inputs

|                                    |            |
|------------------------------------|------------|
| Number of digital switching inputs | 1 Piece(s) |
|------------------------------------|------------|

#### Switching inputs

|              |                         |
|--------------|-------------------------|
| Type         | Digital switching input |
| Voltage type | DC                      |

#### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

#### Switching outputs

|                         |                          |
|-------------------------|--------------------------|
| Type                    | Digital switching output |
| Voltage type            | DC                       |
| Switching current, max. | 100 mA                   |

### Switching output 1

|                     |                      |
|---------------------|----------------------|
| Switching element   | MOSFET semiconductor |
| Switching principle | +24 V switching      |

### Inputs/outputs selectable

|                                     |                           |
|-------------------------------------|---------------------------|
| Number of inputs/outputs selectable | 2 Piece(s)                |
| Type                                | Inputs/outputs selectable |
| Voltage type, outputs               | DC                        |
| Voltage type, inputs                | DC                        |

### Interface

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

#### RS 232

|                       |                      |
|-----------------------|----------------------|
| Function              | Process              |
| Transmission speed    | 4,800 ... 115,200 Bd |
| Data format           | Adjustable           |
| Start bit             | 1                    |
| Data bit              | 8                    |
| Stop bit              | 1                    |
| Parity                | None                 |
| Transmission protocol | <STX><data><CR><LF>  |
| Data encoding         | ASCII                |
|                       | Binary               |

#### RS 422

|                    |                      |
|--------------------|----------------------|
| Function           | Process              |
| Transmission speed | 4,800 ... 115,200 Bd |
| Data format        | Adjustable           |
| Start bit          | 1                    |
| Data bit           | 7, 8 data bits       |
| Stop bit           | 1, 2 stop bits       |
| Parity             | Adjustable           |
| Data encoding      | ASCII                |
|                    | Binary               |

#### Ethernet

|                       |                           |
|-----------------------|---------------------------|
| Architecture          | Client                    |
|                       | Server                    |
| Address assignment    | DHCP                      |
|                       | Manual address assignment |
| Transmission speed    | 10 Mbit/s                 |
|                       | 100 Mbit/s                |
| Function              | Process                   |
| Switch functionality  | None                      |
| Transmission protocol | TCP/IP, UDP               |

### Service interface

|      |          |
|------|----------|
| Type | Ethernet |
|------|----------|

#### Ethernet

|          |         |
|----------|---------|
| Function | Service |
|----------|---------|

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
|-----------------------|------------|

## Technical data

### Connection 1

|                    |                 |
|--------------------|-----------------|
| Function           | Data interface  |
|                    | Signal IN       |
|                    | Signal OUT      |
|                    | Voltage supply  |
| Type of connection | Connector       |
| Thread size        | M12             |
| Type               | Male            |
| Material           | Stainless steel |
| No. of pins        | 12 -pin         |
| Encoding           | A-coded         |

### Connection 2

|                    |                         |
|--------------------|-------------------------|
| Function           | Configuration interface |
|                    | Data interface          |
| Type of connection | Connector               |
| Thread size        | M12                     |
| Type               | Female                  |
| Material           | Stainless steel         |
| No. of pins        | 4 -pin                  |
| Encoding           | D-coded                 |

### Mechanical data

|                            |                              |
|----------------------------|------------------------------|
| Design                     | Cubic                        |
| Dimension (W x H x L)      | 46 mm x 61 mm x 46 mm        |
| Housing material           | Stainless steel              |
| Stainless steel housing    | V4A                          |
| Lens cover material        | Plastic                      |
| Net weight                 | 392 g                        |
| Housing color              | Silver                       |
| Type of fastening          | Mounting thread              |
|                            | Via optional mounting device |
| Compatibility of materials | ECOLAB                       |

### Operation and display

|                       |                     |
|-----------------------|---------------------|
| Type of display       | LED                 |
| Number of LEDs        | 3 Piece(s)          |
| Type of configuration | Configuration codes |
|                       | Teach-in            |
|                       | Via web browser     |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | 0 ... 50 °C   |
| Ambient temperature, storage       | -20 ... 70 °C |
| Relative humidity (non-condensing) | 90 %          |

### Certifications

|                                                                 |                                                      |
|-----------------------------------------------------------------|------------------------------------------------------|
| Degree of protection                                            | IP 67                                                |
|                                                                 | IP 69K, Only with screwed connection cables (1.2 Nm) |
| Protection class                                                | III                                                  |
| Approvals                                                       | c UL US                                              |
| Test procedure for EMC in accordance with standard              | EN 61000-6-2                                         |
|                                                                 | EN 61000-6-4                                         |
| 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          | 27280103 |
| ECLASS 8.0            | 27280103 |
| ECLASS 9.0            | 27280103 |
| ECLASS 10.0           | 27280103 |
| ECLASS 11.0           | 27280103 |
| ECLASS 12.0           | 27280103 |
| ECLASS 13.0           | 27280103 |
| ECLASS 14.0           | 27280103 |
| ECLASS 15.0           | 27280103 |
| ETIM 5.0              | EC002550 |
| ETIM 6.0              | EC002999 |
| ETIM 7.0              | EC002999 |
| ETIM 8.0              | EC002999 |
| ETIM 9.0              | EC002999 |
| ETIM 10.0             | EC002999 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

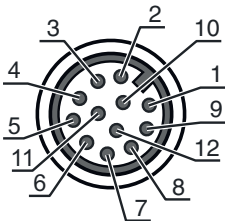
Connection 1

PWR / SWIO

|                    |                 |
|--------------------|-----------------|
| Function           | Data interface  |
|                    | Signal IN       |
|                    | Signal OUT      |
|                    | Voltage supply  |
| Type of connection | Connector       |
| Thread size        | M12             |
| Type               | Male            |
| Material           | Stainless steel |
| No. of pins        | 12 -pin         |
| Encoding           | A-coded         |

Pin Pin assignment

|    |                         |
|----|-------------------------|
| 1  | VIN                     |
| 2  | GNDIN                   |
| 3  | SWIN 1                  |
| 4  | SWOUT 2                 |
| 5  | FE                      |
| 6  | GND RS 232 / GND RS 422 |
| 7  | Rx-                     |
| 8  | Tx-                     |
| 9  | RxD/Rx+                 |
| 10 | TxD/Tx+                 |
| 11 | SWIO 3                  |
| 12 | SWIO 4                  |



## Electrical connection

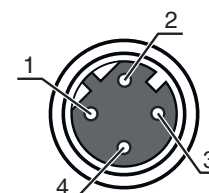
### Connection 2

### HOST

|                    |                         |
|--------------------|-------------------------|
| Function           | Configuration interface |
|                    | Data interface          |
| Type of connection | Connector               |
| Thread size        | M12                     |
| Type               | Female                  |
| Material           | Stainless steel         |
| No. of pins        | 4 -pin                  |
| Encoding           | D-coded                 |

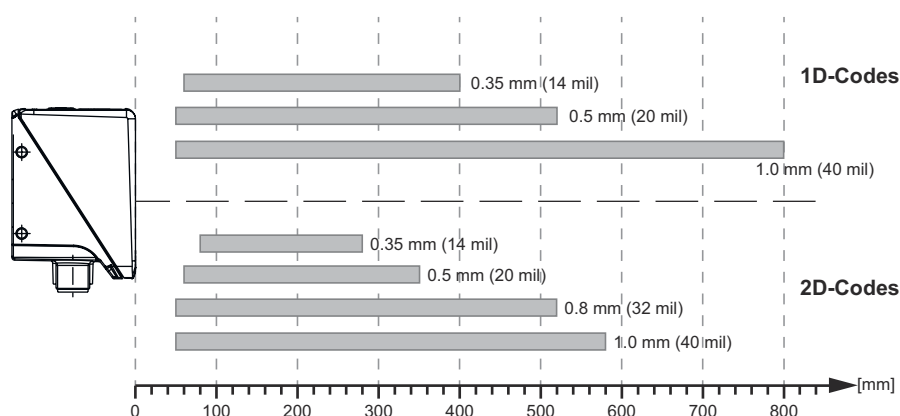
### Pin Pin assignment

|   |     |
|---|-----|
| 1 | TD+ |
| 2 | RD+ |
| 3 | TD- |
| 4 | RD- |



## Diagrams

### Reading distances



### Relationship between camera distance and reading field size



- 1 Camera distance
- 2 Reading field
- 3 Reading field height [mm]
- 4 Reading field width [mm]

Diagrams



- 1 Camera distance [mm]
- 2 Reading field: width x height [mm]

Operation and display

| LED    | Display                             | Meaning                            |
|--------|-------------------------------------|------------------------------------|
| 1 PWR  | Off                                 | No supply voltage                  |
|        | Green, flashing                     | Initialization                     |
|        | Green, continuous light             | Operational readiness              |
|        | Orange, continuous light            | Service operation                  |
|        | Red, flashing                       | Device OK, warning set             |
|        | Red, continuous light               | Device error                       |
| 2 NET  | Off                                 | No supply voltage                  |
|        | Green, flashing                     | Initialization                     |
|        | Green, continuous light             | Operational readiness              |
|        | Red, flashing                       | Communication error                |
|        | Red, continuous light               | Network error                      |
| 3 LINK | Green, continuous light             | Ethernet connection is established |
|        | Yellow, flashing                    | Data exchange active               |
| 4      | Green, flashing (behind lens cover) | Reading successful                 |

Part number code

Part designation: DCR XXX YYY-Z-AAA-BC-D-EEEE

|      |                                                                                                                                                                                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DCR  | <b>Operating principle</b><br>DCR: Dual Code Reader                                                                                                                                                                                                                                                                                                                     |
| XXXX | <b>Series/interface (integrated fieldbus technology)</b><br>202i: Ethernet TCP/IP, UDP, RS 232/RS 422<br>248i: PROFINET-IO, Ethernet TCP/IP, UDP, RS 232/RS 422<br>202iC: Ethernet TCP/IP, UDP, RS 232/RS 422<br>(IoT / Industry 4.0 connectivity)<br>248iC: PROFINET-IO, Ethernet TCP/IP, UDP, RS 232/RS 422<br>(IoT / Industry 4.0 connectivity)<br>258i: EtherNet/IP |
| YYY  | <b>Equipment</b><br>FIX: Fixed focal length                                                                                                                                                                                                                                                                                                                             |
| Z    | <b>Optics</b><br>U: Ultra high density (very close)<br>N: High Density (close)<br>M: Medium Density (medium distance)<br>F: Low Density (remote)<br>L: Ultra low density (very large distance)                                                                                                                                                                          |
| AAA  | <b>Beam exit</b><br>102: front                                                                                                                                                                                                                                                                                                                                          |
| B    | <b>Illumination</b><br>R: Red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                |
| C    | <b>Resolution range</b><br>3: 1280 x 960 pixels                                                                                                                                                                                                                                                                                                                         |
| D    | <b>Protective screen</b><br>n/a: plastic<br>G: Glass<br>P: Polarization filter                                                                                                                                                                                                                                                                                          |
| EEEE | <b>Special equipment</b><br>V: Stainless steel housing<br>F001: NPN inputs/outputs<br>F099: OPC-UA function<br>H: with heating<br>Xxxx: customer-specific model                                                                                                                                                                                                         |

| Note                                                                               |                                                                                                                                        |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>🔗 A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a>.</p> |

Notes

|  Observe intended use! |                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | <p>🔗 This product is not a safety sensor and is not intended as personnel protection.</p> <p>🔗 The product may only be put into operation by competent persons.</p> <p>🔗 Only use the product in accordance with its intended use.</p> |

## Accessories

### Connection technology - Connection cables

|                                                                                                                                                                                                                                                       | Part no. | Designation             | Article          | Description                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 50147677 | KD S-M12-CA-P1-150-V4A  | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 12 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 15.000 mm<br>Sheathing material: PUR                                  |
|                                                                                                                                                                                                                                                       | 50147678 | KS ET-M12-4A-T9-150-F+B | 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: 15.000 mm<br>Sheathing material: PUR |

### Connection technology - Interconnection cables

|                                                                                                                                                                                                                                                                                                                                         | Part no. | Designation                 | Article               | Description                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 50135080 | KSS ET-M12-4A-RJ45-A-P7-020 | 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: 2,000 mm<br>Sheathing material: PUR |

### Mounting technology - Mounting brackets

|                                                                                     | Part no. | Designation | Article          | Description                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50132151 | BT 320M     | Mounting bracket | 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 |

### Mounting technology - Rod mounts

|                                                                                    | Part no. | Designation    | Article         | Description                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------|----------|----------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50120425 | BTU 300M.5-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Stainless steel |

## Accessories

### General

|                                                                                  | Part no. | Designation | Article | Description                                                                                                                                 |
|----------------------------------------------------------------------------------|----------|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50151152 | TT NM 1,2   | Tool    | Type: Torque grip<br>Torque: 1.2 N·m<br>Material: Stainless steel, Plastic<br>Ambient temperature: -40 ... 120 °C                           |
|  | 50151151 | TT SW 13    | Tool    | Type: Hexagon head for torque key<br>Width across flats: 14 mm<br>Material: Stainless steel, Plastic<br>Ambient temperature: -40 ... 120 °C |
|  | 50148408 | TT SW 14    | Tool    | Type: Hexagon head for torque key<br>Width across flats: 14 mm<br>Material: Stainless steel, Plastic<br>Ambient temperature: -40 ... 120 °C |

### Services

|                                                                                    | Part no. | Designation | Article          | Description                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------|----------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | 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.                                                          |

#### Note



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