

## Technical data sheet

### Stationary 2D-code reader

Part no.: 50141802  
DCR 248i FIX-F2-102-I3-G



For illustration purposes only

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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              | 70 ... 360 mm   |
| Light source                  | LED, Infrared   |
| Transmitted-signal shape      | Pulsed          |
| Camera resolution, horizontal | 1,280 px        |
| Camera resolution, vertical   | 960 px          |
| Modulus size                  | 0.19 ... 0.5 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 <sub>B</sub> | 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, PROFINET |
|------|------------------------------------|

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 / 100 Mbit/s           |
| Function              | Process                   |
| Switch functionality  | None                      |
| Transmission protocol | TCP/IP , UDP              |

PROFINET

|                    |             |
|--------------------|-------------|
| Function           | Process     |
| Conformance class  | B           |
| Protocol           | PROFINET RT |
| Transmission speed | 100 Mbit/s  |

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           | Metal          |
| 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           | Metal                   |
| No. of pins        | 4 -pin                  |
| Encoding           | D-coded                 |

### Mechanical data

|                       |                              |
|-----------------------|------------------------------|
| Design                | Cubic                        |
| Dimension (W x H x L) | 43 mm x 61 mm x 44 mm        |
| Housing material      | Metal                        |
|                       | Plastic                      |
| Metal housing         | Diecast aluminum             |
| Plastic housing       | PC                           |
| Lens cover material   | Glass                        |
| Net weight            | 120 g                        |
| Housing color         | Silver                       |
| Type of fastening     | Mounting thread              |
|                       | Via optional mounting device |

### Operation and display

|                                     |                     |
|-------------------------------------|---------------------|
| Type of display                     | LED                 |
| Number of LEDs                      | 10 Piece(s)         |
| Type of configuration               | Configuration codes |
|                                     | Teach-in            |
|                                     | Via web browser     |
| Operational controls                | Button(s)           |
| Function of the operational control | Adjustment mode     |
|                                     | Auto-setup          |
|                                     | Trigger             |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | 0 ... 45 °C   |
| Ambient temperature, storage       | -20 ... 70 °C |
| Relative humidity (non-condensing) | 90 %          |

### Certifications

|                                                                 |                         |
|-----------------------------------------------------------------|-------------------------|
| Degree of protection                                            | IP 65                   |
| 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           | Metal          |
| 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

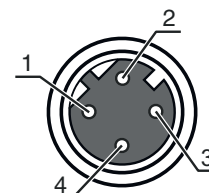
### Connection 2

### HOST

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

### Pin Pin assignment

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



## Diagrams

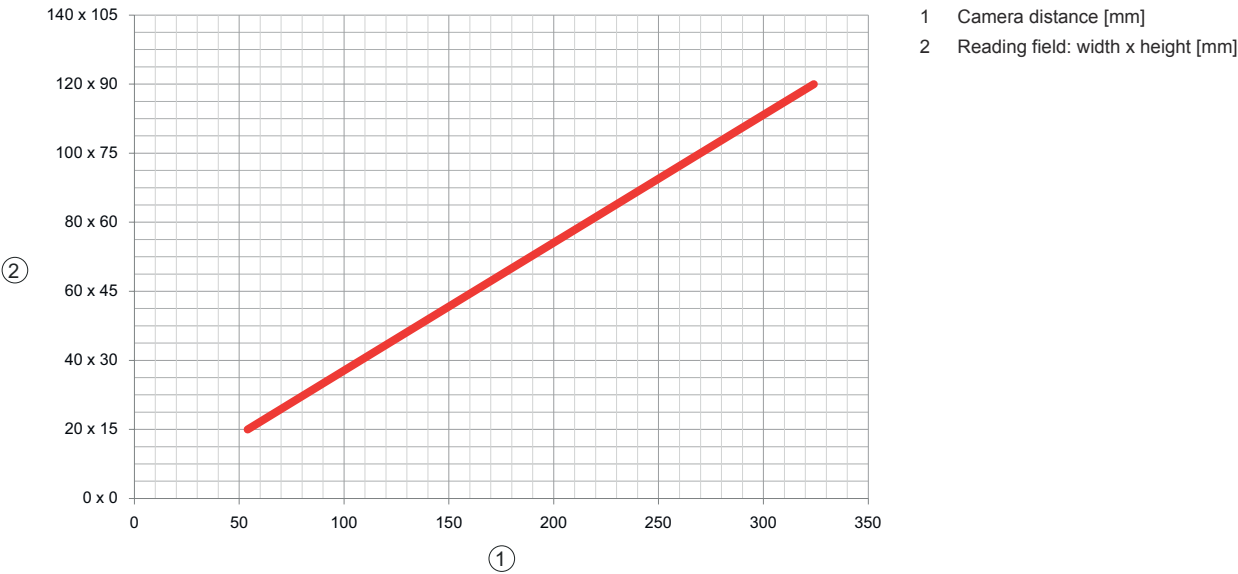
### Reading distances



### Relationship between camera distance and reading field size



Diagrams



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 TRIG  | Green, flashing                     | Trigger and display of the read quality        |
| 5 AUTO  | Green, flashing                     | Auto-setup and display of the read quality     |
| 6 ADJ   | Green, flashing                     | Alignment mode and display of the read quality |
| 7 TEACH | Green, flashing                     | Teach-in and display of the read quality       |
| 8       | Green, flashing                     | Display of the reading quality                 |
| 9       | Green, flashing                     | Display of the reading quality                 |
| 10      | 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 (IoT / Industry 4.0 connectivity)<br>248iC: PROFINET-IO, Ethernet TCP/IP, UDP, RS 232/RS 422 (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                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------|---------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130281 | KD S-M12-CA-P1-020  | 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: 2.000 mm<br>Sheathing material: PUR                                  |
|                                                                                   | 50135073 | KS ET-M12-4A-P7-020 | 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: 2.000 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                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------|--------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50132150 | BTU 320M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

## Accessories

### Illuminations

|                                                                                  | Part no. | Designation            | Article      | Description                                                                                        |
|----------------------------------------------------------------------------------|----------|------------------------|--------------|----------------------------------------------------------------------------------------------------|
|  | 50144030 | IL AL 034/031 IR 110 H | Illumination | Special version: Heating<br>Functions: Strobed operation (edge-triggered), no continuous operation |

### 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.