# Technical data sheet

# Light curtain receiver

Part no.: 50119981

# CML720i-R40-1570.R/CN-M12

Figure can vary

## Contents

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# Technical data

# Leuze

## Basic data

| | |
|---|---|
| Series | 720 |
| Operating principle | Throughbeam principle |
| Device type | Receiver |
| Contains | Accessories for the use of the BT-2R1 |
| Application | Object measurement |

## Special version

| | |
|---|---|
| Special version | Crossed-beam scanning |
| | Diagonal-beam scanning |
| | Parallel-beam scanning |

## Optical data

| | |
|---|---|
| Operating range | Guaranteed operating range |
| Operating range | 0.3 ... 7 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.2 ... 9 m |
| Measurement field length | 1,570 mm |
| Number of beams | 39 Piece(s) |
| Beam spacing | 40 mm |

## Measurement data

| | |
|---|---|
| Minimum object diameter | 50 mm |

## Electrical data

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

### Performance data

| | |
|---|---|
| Supply voltage $U_B$ | 18 ... 30 V, DC |
| Residual ripple | 0 ... 15 %, From $U_B$ |
| Open-circuit current | 0 ... 350 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

### Inputs/outputs selectable

| | |
|---|---|
| Output current, max. | 100 mA |
| Input resistance | 6,000 Ω |
| Number of inputs/outputs selectable | 2 Piece(s) |
| Type | Inputs/outputs selectable |
| Voltage type, outputs | DC |
| Switching voltage, outputs | Typ. $U_B$ / 0 V |
| Voltage type, inputs | DC |
| Switching voltage, inputs | high: ≥6V |
| | low: ≤4V |

### Input/output 1

| | |
|---|---|
| Activation/disable delay | 1 ms |

## Timing

| | |
|---|---|
| Readiness delay | 450 ms |
| Cycle time | 1.57 ms |
| Response time per beam | 30 µs |

## Interface

| | |
|---|---|
| Type | CANopen |

### CANopen

| | |
|---|---|
| Function | Process |

## Service interface

| | |
|---|---|
| Type | IO-Link |

### IO-Link

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

## Connection

| | |
|---|---|
| Number of connections | 2 Piece(s) |
| Plug outlet | Rear side |

### Connection 1

| | |
|---|---|
| Function | Configuration interface |
| | Connection to transmitter |
| | Signal IN |
| | Signal OUT |
| | Voltage supply |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8 -pin |
| Encoding | A-coded |

### Connection 2

| | |
|---|---|
| Function | BUS IN |
| | BUS OUT |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | A-coded |

## Mechanical data

| | |
|---|---|
| Design | Cubic |
| Dimension (W x H x L) | 29 mm x 35.4 mm x 1,623 mm |
| Housing material | Metal |
| Metal housing | Aluminum |
| Lens cover material | Plastic |
| Net weight | 1,800 g |
| Housing color | Silver |
| Type of fastening | Groove mounting |
| | Via optional mounting device |

## Operation and display

| | |
|---|---|
| Type of display | LED |
| | OLED display |
| Number of LEDs | 2 Piece(s) |
| Type of configuration | Software |
| | Teach-in |
| Operational controls | Membrane keyboard |

## Environmental data

| | |
|---|---|
| Ambient temperature, operation | -30 ... 60 °C |
| Ambient temperature, storage | -40 ... 70 °C |

# Technical data

## Certifications

| | |
|---|---|
| **Degree of protection** | IP 65 |
| **Protection class** | III |
| **Certifications** | c CSA US |
| **Standards applied** | IEC 60947-5-2 |

## Classification

| | |
|---|---|
| **Customs tariff number** | 90314990 |
| **eCl@ss 5.1.4** | 27270910 |
| **eCl@ss 8.0** | 27270910 |
| **eCl@ss 9.0** | 27270910 |
| **eCl@ss 10.0** | 27270910 |
| **eCl@ss 11.0** | 27270910 |
| **ETIM 5.0** | EC002549 |
| **ETIM 6.0** | EC002549 |
| **ETIM 7.0** | EC002549 |

# Dimensioned drawings

All dimensions in millimeters



A   Beam spacing 40 mm

B   Measurement field length 1570 mm

F   M6 thread

G   Fastening groove

L   Profile length 1608 mm

T   Transmitter

R   Receiver

Y   5 mm

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# Dimensioned drawings

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A PWR / SW IN / OUT
B BUS IN / OUT

# Electrical connection

## Connection 1

| Function | Configuration interface |
|---|---|
| | Connection to transmitter |
| | Signal IN |
| | Signal OUT |
| | Voltage supply |
| **Type of connection** | Connector |
| **Thread size** | M12 |
| **Type** | Male |
| **Material** | Metal |
| **No. of pins** | 8 -pin |
| **Encoding** | A-coded |

| Pin | Pin assignment |
|---|---|
| 1 | V+ |
| 2 | I/O 1 |
| 3 | GND |
| 4 | IO-Link |
| 5 | I/O 2 |
| 6 | RS 485 Tx+ |
| 7 | RS 485 Tx+ |
| 8 | FE/SHIELD |

## Connection 2

| Function | BUS IN |
|---|---|
| | BUS OUT |
| **Type of connection** | Connector |
| **Thread size** | M12 |
| **Type** | Female |
| **Material** | Metal |
| **No. of pins** | 5 -pin |
| **Encoding** | A-coded |

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# Electrical connection

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| Pin | Pin assignment |
|-----|----------------|
| 1 | FE/SHIELD |
| 2 | n.c. |
| 3 | CAN GND |
| 4 | CAN H |
| 5 | CAN L |

# Operation and display

| LED | Display | Meaning |
|-----|---------|---------|
| 1 | Green, continuous light | Operational readiness |
|   | Green, flashing | Teach / error |
| 2 | Yellow, continuous light | Light path free, with function reserve |
|   | Yellow, flashing | No function reserve |
|   | Off | Object detected |

# Suitable transmitters

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------|-------------|
| | 50119527 | CML720i-T40-1570.R-M12 | Light curtain transmitter | Operating range: 0.3 ... 6 m<br>Connection: Connector, M12, Rear side, 5 -pin |

# Part number code

Part designation: **CML7XXi-YZZ-AAAA.BCCCDDD-EEEFFF**

| CML | **Operating principle**<br>Measuring light curtain |
|-----|---------------------------------------------------|
| 7XXi | **Series**<br>720i: 720i series<br>730i: 730i series |
| Y | **Device type**<br>T: transmitter<br>R: receiver |
| ZZ | **Beam spacing**<br>05: 5 mm<br>10: 10 mm<br>20: 20 mm<br>40: 40 mm |
| AAAA | Measurement field length [mm], dependent on beam spacing |
| B | **Equipment**<br>A: connector outlet, axial<br>R: rear connector outlet |
| CCC | **Interface**<br>L: IO-Link<br>/CN: CANopen<br>/PB: PROFIBUS<br>/PN: PROFINET<br>/CV: Analog current and voltage output<br>/D3: RS 485 Modbus |

# Part number code

| DDD | **Special equipment**<br>-PS: Power Setting |
|-----|---------------------------------------------|
| EEE | **Electrical connection**<br>M12: M12 connector |
| FFF | **-EX: Explosion protection** |

| | **Note** |
|--|-----------|
| | ✎ A list with all available device types can be found on the Leuze website at www.leuze.com. |

## Notes

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

| | **For UL applications:** |
|--|--------------------------|
| | ✎ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).<br>✎ These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7) |
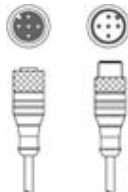
## Accessories

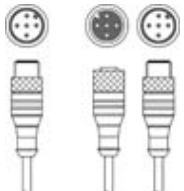## Connection technology - Connection cables

| | 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>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

## Connection technology - Interconnection cables

| | Part no. | Designation | Article | Description |
|--|----------|-------------|---------|-------------|
| | 50129781 | KDS DN-M12-5A-M12-5A-P3-050 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

# Accessories

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## Connection technology - Y distribution cables

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50118183 | K-Y1 M12A-5m-M12A-S-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 5,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR |
| | 50118185 | K-YCN M12A-M12A-S-PUR | Interconnection cable | Suitable for interface: CANopen<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length fork 1: 250 mm<br>Cable length fork 2: 350 mm<br>Sheathing material: PUR |

## Connection technology - Terminating resistors

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50040099 | TS 01-5-SA | Terminator plug | Suitable for: DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Function: Bus termination |

## Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50142900 | BT 700M.5-2SET | Mounting device set | Design of mounting device: Bracket mounting<br>Fastening, at system: Through-hole mounting, T slotted hole<br>Mounting bracket, at device: Screw type, Sliding block<br>Type of mounting device: Rigid<br>Material: Steel |

## Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 429046 | BT-2R1 | Mounting bracket set | Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 360°<br>Material: Metal, Plastic |

## Services

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | S981001 | CS10-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.<br>Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment. |

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# Accessories

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| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | S981005 | CS10-T-110 | Product training | Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure. |

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

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