# Technical data sheet
# Light curtain receiver
Part no.: 50120077
CML720i-R10-320.R/L-M12

For Illustration purposes only

**Contents**


- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories

# 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

| | |
|---|---|
| **Measurement field length** | 320 mm |
| **Number of beams** | 32 Piece(s) |
| **Beam spacing** | 10 mm |

## Measurement data

| | |
|---|---|
| **Minimum object diameter** | 20 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 ... 165 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** | 4 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: ≤ 4 V |

#### Input/output 1

| | |
|---|---|
| **Activation/disable delay** | 0 ... 1 ms |

## Time behavior

| | |
|---|---|
| **Readiness delay** | 400 ms |
| **Cycle time** | 1.36 ms |
| **Response time per beam** | 30 µs |

## Interface

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

### IO-Link

| | |
|---|---|
| **COM mode** | COM2 |
| **Min. cycle time** | COM2 = 2.3 ms |
| **Specification** | V1.0.1 |
| | V1.1 |

## 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 |
| | 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** | Connection to transmitter |
| **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 343 mm |
| **Housing material** | Metal |
| **Metal housing** | Aluminum |
| **Lens cover material** | Plastic |
| **Net weight** | 600 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 |

## Certifications

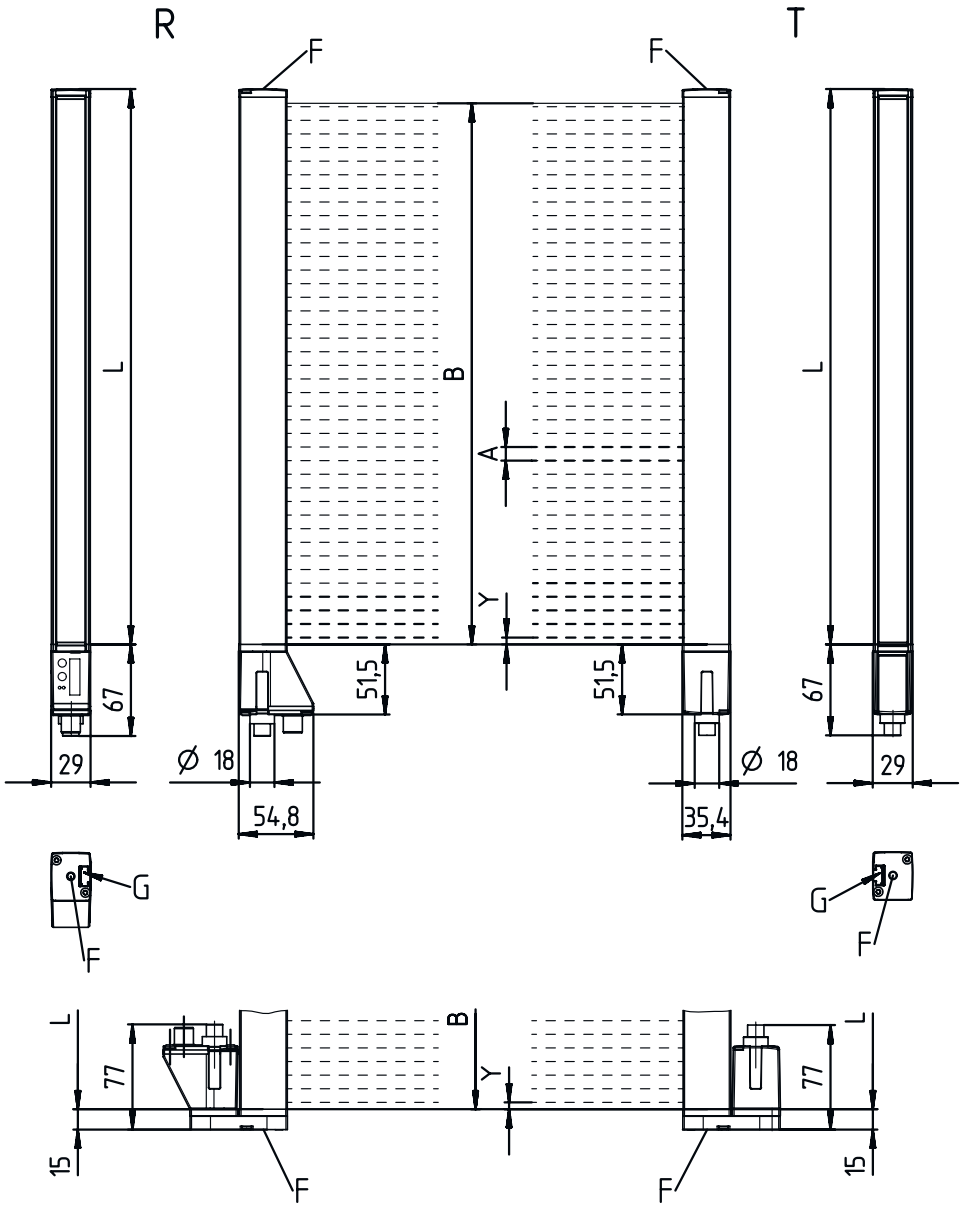
| | |
|---|---|
| **Degree of protection** | IP 65 |
| **Protection class** | III |
| **Approvals** | c UL US |
| **Standards applied** | IEC 60947-5-2 |

# Technical data

| | |
|---|---|
| **Customs tariff number** | 90314990 |
| **ECLASS 5.1.4** | 27270910 |
| **ECLASS 8.0** | 27270910 |
| **ECLASS 9.0** | 27270910 |
| **ECLASS 10.0** | 27270910 |
| **ECLASS 11.0** | 27270910 |
| **ECLASS 12.0** | 27270910 |
| **ECLASS 13.0** | 27270910 |
| **ECLASS 14.0** | 27270910 |
| **ECLASS 15.0** | 27270910 |
| **ETIM 5.0** | EC002549 |
| **ETIM 6.0** | EC002549 |
| **ETIM 7.0** | EC002549 |
| **ETIM 8.0** | EC002549 |
| **ETIM 9.0** | EC002549 |
| **ETIM 10.0** | EC002549 |

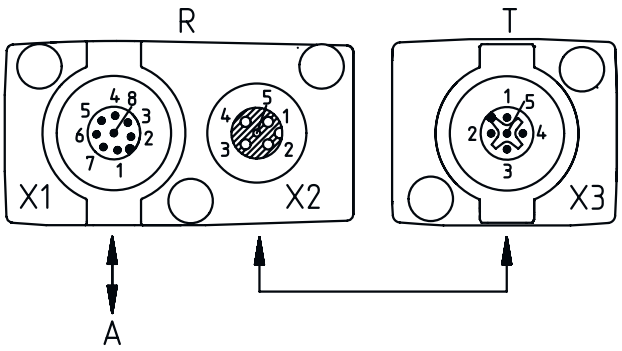
# Dimensioned drawings

All dimensions in millimeters




| | | | |
|---|---|---|---|
| A | Beam spacing 10 mm | L | Profile length 328 mm |
| B | Measurement field length 320 mm | T | Transmitter |
| F | M6 thread | R | Receiver |
| G | Fastening groove | Y | 5 mm |

# Dimensioned drawings



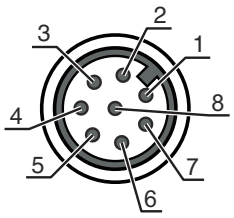

A PWR / SW IN / OUT

# Electrical connection

## Connection 1

| | |
|---|---|
| **Function** | Configuration interface |
| | 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 |

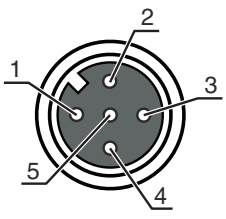
| Pin | Pin assignment |
|---|---|
| **1** | V+ |
| **2** | IO1 |
| **3** | GND |
| **4** | IO-Link |
| **5** | IO2 |
| **6** | IO3 |
| **7** | IO4 |
| **8** | GND |




## Connection 2

| | |
|---|---|
| **Function** | Connection to transmitter |
| **Type of connection** | Connector |
| **Thread size** | M12 |
| **Type** | Female |
| **Material** | Metal |
| **No. of pins** | 5 -pin |
| **Encoding** | A-coded |

| Pin | Pin assignment |
|---|---|
| **1** | FE/SHIELD |
| **2** | V+ |
| **3** | GND |
| **4** | RS 485 Tx+ |
| **5** | RS 485 Tx- |



# 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 | Operating range<br>Operating range limit | Description |
|---|---|---|---|---|
| | 50119487 | CML720i-T10-320.R-M12 | 0.3 ... 7 m<br>0.2 ... 9 m | Operating range: 0.3 ... 7 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: Axial connector outlet<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 |
| **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.
- The product may only be put into operation by competent persons.
- 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).
- 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

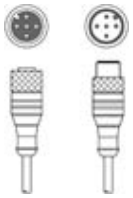
## Connection technology - Connection unit

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50144900 | MD 798i-11-82/L5-2222 | IO-Link master | Current consumption, max.: 11,000 mA<br>Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET<br>Connections: 12 Piece(s)<br>Sensor connections: 8 Piece(s)<br>Degree of protection: IP 67, IP 65, IP 69K |

## Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Application: Oil and lubricant resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 8 -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 |
|---|---|---|---|---|
|  | 50129781 | KDS DN-M12-5A-M12-5A-P3-050 | Interconnection cable | Application: Oil and lubricant resistant<br>Suitable for interface: 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

## Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50142900 | BT 700M.5-2SET | Mounting device set | Contains: 2x mounting brackets, 1 teach template, 4 M6 x 10 screws<br>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 |

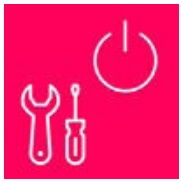
## Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 429029 | BT-2RG | Mounting bracket set | Contains: 2x BT-R swivel mount, 2 cylinders for mounting on the light curtain<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 360°<br>Material: Metal, Plastic |

## Configuration devices

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Supply voltage: DC<br>Interface: USB<br>Connections: 2 Piece(s)<br>Degree of protection: IP 20 |

## 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. |
| | S981005 | CS10-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.