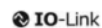




Figure can vary

**Part no.: 50119771**  
**CML720i-R20-310.A/L-M12**  
**Light curtain receiver**



## Contents

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

## Technical data

| <b>Basic data</b>                   |   |
|-------------------------------------|---|
| Series                              | 720   |
| Operating principle                 | Throughbeam principle   |
| Device type                         | Receiver  |
| Contains                            | 2x BT-NC sliding block  |
| Application                         | Object measurement  |
| <b>Special design</b>               |   |
| Special design                      | Crossed-beam scanning<br>Diagonal-beam scanning<br>Parallel-beam scanning                               |
| <b>Optical data</b>                 |   |
| 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            | 310 mm  |
| Number of beams                     | 16 Piece(s)   |
| Beam spacing                        | 20 mm   |
| <b>Measurement data</b>             |   |
| Minimum object diameter             | 30 mm   |
| <b>Electrical data</b>              |   |
| Protective circuit                  | Polarity reversal protection<br>Short circuit protected<br>Transient protection                         |
| <b>Performance data</b>             |   |
| Supply voltage $U_B$                | 18 ... 30 V , DC  |
| Residual ripple                     | 0 ... 15 % , From $U_B$   |
| Open-circuit current                | 0 ... 135 mA , The specified values refer to the entire package consisting of transmitter and receiver. |
| <b>Inputs/outputs selectable</b>    |   |
| Output current, max.                | 100 mA  |
| Input resistance                    | 6,000 $\Omega$  |
| 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: $\geq 6V$<br>low: $\leq 4V$   |
| <b>Input/output 1</b>               |   |
| Activation/disable delay            | 0 ... 1 ms  |
| <b>Timing</b>                       |   |
| Readiness delay                     | 400 ms  |
| Cycle time                          | 1 ms  |
| Response time per beam              | 30 $\mu s$  |

| <b>Interface</b>             |  |
|------------------------------|--|
| Type                         | IO-Link  |
| <b>IO-Link</b>               |  |
| COM mode                     | COM2   |
| Specification                | V1.0.1<br>V1.1   |
| Min. cycle time              | COM2 = 2.3 ms  |
| <b>Service interface</b>     |  |
| Type                         | IO-Link  |
| <b>IO-Link</b>               |  |
| Function                     | Configuration via software<br>Service                                |
| <b>Connection</b>            |  |
| Number of connections        | 2 Piece(s)   |
| Plug outlet                  | Axial  |
| <b>Connection 1</b>          |  |
| Function                     | Configuration interface<br>Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection           | Connector  |
| Thread size                  | M12  |
| Type                         | Male   |
| Material                     | Metal  |
| No. of pins                  | 8 -pin   |
| Encoding                     | A-coded  |
| <b>Connection 2</b>          |  |
| Function                     | Connection to transmitter  |
| Type of connection           | Connector  |
| Thread size                  | M12  |
| Type                         | Female   |
| Material                     | Metal  |
| No. of pins                  | 5 -pin   |
| Encoding                     | A-coded  |
| <b>Mechanical data</b>       |  |
| Design                       | Cubic  |
| Dimension (W x H x L)        | 29 mm x 35.4 mm x 395 mm   |
| Housing material             | Metal , Aluminum   |
| Lens cover material          | Plastic  |
| Net weight                   | 550 g  |
| Housing color                | Silver   |
| Type of fastening            | Groove mounting<br>Via optional mounting device                      |
| <b>Operation and display</b> |  |
| Type of display              | LED<br>OLED display  |
| Number of LEDs               | 2 Piece(s)   |

**Part no.: 50119771 – CML720i-R20-310.A/L-M12 – Light curtain receiver**

|                       |                      |
|-----------------------|----------------------|
| Type of configuration | Software<br>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           |
| Certifications       | c CSA US      |
| Standards applied    | IEC 60947-5-2 |

**Classification**

|                       |          |
|-----------------------|----------|
| Customs tariff number | 90314990 |
| eCl@ss 8.0            | 27270910 |
| eCl@ss 9.0            | 27270910 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | EC002549 |

## Dimensioned drawings

All dimensions in millimeters



- A Beam spacing 20 mm
- B Measurement field length 310 mm
- F M6 thread
- G Fastening groove
- L Profile length 328 mm
- T Transmitter
- R Receiver
- Y 5 mm



A PWR / SW IN/OUT

## Electrical connection

| Connection 1       |  |
|--------------------|--|
| Function           | Configuration interface<br>Signal IN<br>Signal OUT<br>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

### LEDs

| LED | Display                  | Meaning                                |
|-----|--------------------------|--|
| 1   | Green, continuous light  | Operational readiness                  |
|     | Green, flashing          | Teach / error                          |
|     |                          | Measurement frequency display          |
| 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   |
|---|----------|-----------------------|---------------------------|---|
|  | 50119424 | CML720i-T20-310.A-M12 | Light curtain transmitter | Operating range: 0.3 ... 6 m<br>Connection: Connector, M12, Axial, 5 -pin |

## Part number code

Part designation: **CML7XXi-YZZ-AAAA.BCCDDDD-EEEEFF**

|      |   |
|------|---|
| CML  | <b>Operating principle:</b><br>Measuring light curtain  |
| 7XXi | <b>Series:</b><br>720i: 720i series<br>730i: 730i series  |
| Y    | <b>Device type:</b><br>T: transmitter<br>R: receiver  |
| ZZ   | <b>Beam spacing:</b><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    | <b>Equipment:</b><br>A: connector outlet, axial<br>R: rear connector outlet   |
| CCC  | <b>Interface:</b><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  | <b>Special equipment:</b><br>-PS: Power Setting   |
| EEE  | <b>Electrical connection:</b><br>M12: M12 connector   |
| FFF  | <b>-EX: Explosion protection:</b>   |

### Note

A list with all available device types can be found on the Leuze electronic website at [www.leuze.com](http://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 cables

|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<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 | 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 |

### 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 |



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## Mounting technology - Swivel mounts

|   | Part no. | Designation | Article              | Description   |
|---|----------|-------------|----------------------|---|
|  | 429046   | BT-2R1      | Mounting bracket set | Contains: 2x BT-R swivel mount, 1 cylinder 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 |

|   | Part no. | Designation                     | Article         | Description  |
|---|----------|---------------------------------|-----------------|--|
|  | 50121098 | SET<br>MD12-US2-IL1.1<br>+ Zub. | Diagnostics set | 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.<br>Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment. |
|  | 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.<br>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 electronic website in the Download tab of the article detailed page.