

## Technical data sheet Light curtain receiver

Part no.: 50119825

CML720i-R05-2400.A/CV-M12



Figure can vary

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## Technical data

### Basic data

|                     |                        |
|---------------------|------------------------|
| Series              | 720                    |
| Operating principle | Throughbeam principle  |
| Device type         | Receiver               |
| Contains            | 2x BT-NC sliding block |
| 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          | 0.1 ... 3.5 m              |
| Operating range limit    | Typical operating range    |
| Operating range limit    | 0.1 ... 4.5 m              |
| Measurement field length | 2,400 mm                   |
| Number of beams          | 480 Piece(s)               |
| Beam spacing             | 5 mm                       |

### Measurement data

|                         |       |
|-------------------------|-------|
| Minimum object diameter | 10 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 ... 435 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

### Outputs

|                          |            |
|--------------------------|------------|
| Number of analog outputs | 2 Piece(s) |
|--------------------------|------------|

### Analog outputs

|         |             |
|---------|-------------|
| Current | 0 ... 24 mA |
| Voltage | 0 ... 11 V  |

### Analog output 1

|      |         |
|------|---------|
| Type | Voltage |
|------|---------|

### Analog output 2

|      |         |
|------|---------|
| Type | Current |
|------|---------|

### Inputs/outputs selectable

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Output current, max.                | 100 mA                              |
| Input resistance                    | 6,000 $\Omega$                      |
| 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: $\geq 6$ V<br>low: $\leq 4$ V |

### Input/output 1

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

### Timing

|                        |            |
|------------------------|------------|
| Readiness delay        | 450 ms     |
| Cycle time             | 14.8 ms    |
| Response time per beam | 30 $\mu$ s |

### Service interface

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

### IO-Link

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

### Connection

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

### 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 2,475 mm |
|-----------------------|----------------------------|

|                  |       |
|------------------|-------|
| Housing material | Metal |
|------------------|-------|

|               |          |
|---------------|----------|
| Metal housing | Aluminum |
|---------------|----------|

|                     |         |
|---------------------|---------|
| Lens cover material | Plastic |
|---------------------|---------|

|            |         |
|------------|---------|
| Net weight | 2,450 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 |
|----------------------|-------------------|

## Technical data

### 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 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 5 mm                | L | Profile length 2408 mm |
| B | Measurement field length 2400 mm | T | Transmitter            |
| F | M6 thread                        | R | Receiver               |
| G | Fastening groove                 | Y | 2.5 mm                 |

## Dimensioned drawings



## 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 | I/O 1   |
| 3 | GND     |
| 4 | IO-Link |
| 5 | I/O 2   |
| 6 | OUT V   |
| 7 | OUT mA  |
| 8 | AGND    |



### 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            | Article                   | Description   |
|---|----------|------------------------|---------------------------|---|
|  | 50119397 | CML720i-T05-2400.A-M12 | Light curtain transmitter | Operating range: 0.1 ... 3.5 m<br>Connection: Connector, M12, Axial, 5 -pin |

## Part number code

Part designation: CML7XXi-YZZ-AAAA.BCCDDDD-EEEEFFF

|             |  |
|-------------|--|
| <b>CML</b>  | <b>Operating principle</b><br>Measuring light curtain  |
| <b>7XXi</b> | <b>Series</b><br>720i: 720i series<br>730i: 730i series  |
| <b>Y</b>    | <b>Device type</b><br>T: transmitter<br>R: receiver  |
| <b>ZZ</b>   | <b>Beam spacing</b><br>05: 5 mm<br>10: 10 mm<br>20: 20 mm<br>40: 40 mm   |
| <b>AAAA</b> | Measurement field length [mm], dependent on beam spacing   |
| <b>B</b>    | <b>Equipment</b><br>A: connector outlet, axial<br>R: rear connector outlet   |
| <b>CCC</b>  | <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 |
| <b>DDD</b>  | <b>Special equipment</b><br>-PS: Power Setting   |
| <b>EEE</b>  | <b>Electrical connection</b><br>M12: M12 connector   |
| <b>FFF</b>  | <b>-EX: Explosion protection</b>   |

### Note



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

## Notes

|                              |   |
|------------------------------|---|
| <b>Observe intended use!</b> |   |
|                              | <ul style="list-style-type: none"> <li>⌘ This product is not a safety sensor and is not intended as personnel protection.</li> <li>⌘ The product may only be put into operation by competent persons.</li> <li>⌘ Only use the product in accordance with its intended use.</li> </ul> |

|                             |   |
|-----------------------------|---|
| <b>For UL applications:</b> |   |
|                             | <ul style="list-style-type: none"> <li>⌘ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li> <li>⌘ 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)</li> </ul> |

## 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 | 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 |

## Accessories

### 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 |

### Configuration devices

|  | Part no. | Designation                  | Article         | Description  |
|--|----------|------------------------------|-----------------|--|
|  | 50121098 | SET 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 website in the Download tab of the article detailed page.