

## **Technical data sheet Light curtain receiver** Part no.: 50120138 CML720i-R05-1360.R/CV-M12



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We reserve the right to make technical changes

### **Technical data**

#### Basic data

| 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                     | 0.1 3.5 m  |  |  |
| Operating range                     | Guaranteed operating range   |  |  |
| Operating range limit               | 0.1 4.5 m  |  |  |
| Operating range limit               | Typical operating range  |  |  |
| Measurement field length            | 1,360 mm   |  |  |
| Number of beams                     | 272 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 <sub>B</sub>       | 18 30 V, DC  |  |  |
| Residual ripple                     | 0 15 %, From U <sub>B</sub>  |  |  |
| Open-circuit current                | <ol> <li>270 mA, The specified values refer<br/>to the entire package consisting of trans-<br/>mitter and receiver.</li> </ol> |  |  |
| Outroute                            |  |  |  |
| Outputs<br>Number of analog outputs | 2 Piece(s)   |  |  |
| Number of analog outputs            | 211666(3)  |  |  |
| Analog outputs                      |  |  |  |
| Туре                                | Analog output  |  |  |
| Current                             | 0 24 mA  |  |  |
| Voltage                             | 0 11 V   |  |  |
|                                     |  |  |  |
| Analog output 1                     |  |  |  |
| Туре                                | Voltage  |  |  |
| Analog output 2                     |  |  |  |
| Analog output 2<br>Type             | Current  |  |  |
| .160                                | Controll.  |  |  |
| Inputs/outputs selectable           |  |  |  |
| Output current, max.                | 100 mA   |  |  |
| Input resistance                    | 6,000 Ω  |  |  |
| Number of inputs/outputs selecta    |  |  |  |
| Туре                                | Inputs/outputs selectable  |  |  |
| Voltage type, outputs               | DC   |  |  |
| Switching voltage, outputs          | Typ. U <sub>B</sub> / 0 V  |  |  |
| Voltage type, inputs                | DC   |  |  |
| Switching voltage, inputs           | high: ≥6V  |  |  |
| e                                   | low: ≤ 4 V   |  |  |
|                                     | 15W. = T V   |  |  |

| Activation/disable delay             | 1 ms  |
|--------------------------------------|---|
|                                      |   |
| Time behavior                        |   |
| Readiness delay                      | 450 ms  |
| Cycle time                           | 8.56 ms   |
| Response time per beam               | 30 µs   |
| Service interface                    |   |
| Туре                                 | IO-Link   |
|                                      |   |
| IO-Link                              |   |
| Function                             | Configuration via software<br>Service           |
|                                      | Service   |
| Connection                           |   |
| Number of connections                | 2 Piece(s)                                      |
| Plug outlet                          | Rear side                                       |
| Connection 4                         |   |
| Connection 1                         | Configuration interface                         |
| 1 anoton                             | 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   |
| Encoung                              | A-coded   |
| Connection 2                         |   |
| Function                             | Connection to transmitter                       |
| Type of connection                   | Connector                                       |
| Thread size                          | M12   |
| Туре                                 | 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 1,383 mm                      |
| Housing material                     | Metal   |
| Metal housing<br>Lens cover material | Aluminum<br>Plastic                             |
|                                      |   |
| Net weight                           | 1,550 g<br>Silver                               |
| Housing color<br>Type of fastening   |   |
| Type of fastening                    | Groove mounting<br>Via optional mounting device |
|                                      | the optional mounting dorloo                    |
| Operation and display                |   |
| Type of display                      | LED   |
|                                      | OLED display                                    |
| Number of LEDs                       | 2 Piece(s)                                      |
| Type of configuration                | Software  |
|                                      |   |

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### **Technical data**

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#### **Environmental data**

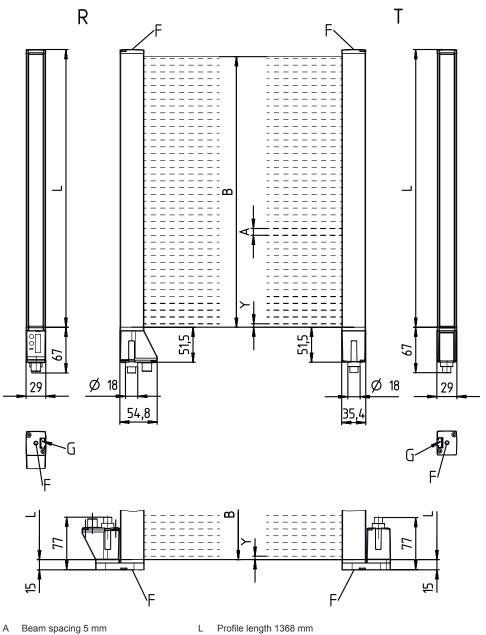
| Ambient temperature, operation | -30 60 °C |
|--------------------------------|-----------|
| Ambient temperature, storage   | -40 70 °C |
| Certifications                 |           |

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

| Classification        |          |
|-----------------------|----------|
| 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

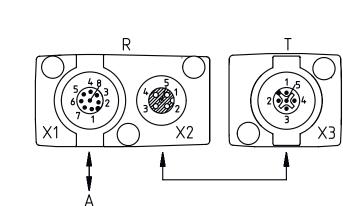


- Beam spacing 5 mm А
- В Measurement field length 1360 mm
- F M6 thread G Fastening groove
- Transmitter Т
- R Receiver
- 2.5 mm Υ

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### **Dimensioned drawings**





A PWR / SW IN / OUT

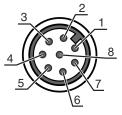
### **Electrical connection**

**Connection 1** 

| Function           | Configuration interface |
|--------------------|-------------------------|
|                    | Signal IN               |
|                    | Signal OUT              |
|                    | Voltage supply          |
| Type of connection | Connector               |
| Thread size        | M12                     |
| Туре               | 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                       |
| Туре               | 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 displav**

LED 1

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| t curtain rec | eiver • Part no.: 50120138 • CML720i-R05-1360.R/CV-M12 |  |
|---------------|--|--|
| peration      | on and display   | Leuze                                  |
| D             | Display  | Meaning                                |
|               | Green, continuous light                                | Operational readiness                  |
|               | Green, flashing  | Teach / error                          |
|               | Yellow, continuous light                               | Light path free, with function reserve |
|               | Yellow, flashing                                       | No function reserve                    |
|               | Off  | Object detected                        |
|               |  |  |

### Suitable transmitters

| <br>Part no. | Designation                | Article                      | Description   |
|--------------|----------------------------|------------------------------|---|
| 50119465     | CML720i-T05-<br>1360.R-M12 | Light curtain<br>transmitter | Operating range: 0.1 3.5 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           720i: 720i series           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  |
| В         | 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 wi | th 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.

 $\ensuremath{^{\ensuremath{\Downarrow}}}$  The product may only be put into operation by competent persons.

 $\ensuremath{^{\ensuremath{\Downarrow}}}$  Only use the product in accordance with its intended use.

|   | For UL applications:  |
|---|---|
| A | <ul> <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/<br/>CYJV7 or PVVA/PVVA7)</li> </ul> |

#### Accessories

#### Connection technology - Connection cables

| <br>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>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-<br>M12-5A-P3-050 | Interconnection cable | 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 |

#### Mounting technology - Mounting brackets

|  | Part no. | Designation    | Article             | Description   |
|--|----------|----------------|---------------------|---|
| 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 | 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 |

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#### Accessories

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### Mounting technology - Swivel mounts

|     | Part no. | Designation | Article              | Description   |
|-----|----------|-------------|----------------------|---|
| ęę. | 429029   | BT-2RG      | 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

| <br>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

| <br>Part no. | Designation | Article          | Description  |
|--------------|-------------|------------------|--|
| S981001      | CS10-S-110  | Start-up support | Details: Performed at location of customer's choosing, duration: max. 10<br>hours.<br>Conditions: Devices and connection cables are already mounted, price not<br>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<br>expenses.   |

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