

# Technical data sheet Light curtain receiver Part no.: 50119858 CML720i-R20-1270.A/CV-M12



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 changes

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 eng • 2024-06-21

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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  | 0.3 7 m  |  |
| Operating range  | Guaranteed operating range   |  |
| Operating range limit  | 0.2 9 m  |  |
| Operating range limit  | Typical operating range  |  |
| Measurement field length   | 1,270 mm   |  |
| Number of beams  | 64 Piece(s)  |  |
| Beam spacing   | 20 mm  |  |
| Measurement data   |  |  |
|  | 30 mm  |  |
| Electrical data  |  |  |
|  | Polarity royonal protoctica  |  |
|  | Polarity reversal protection<br>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>  |  |
|  | 0 270 mA, The specified values refer<br>to the entire package consisting of trans-<br>mitter and receiver.   |  |
|  |  |  |
| Outputs  |  |  |
| Outputs<br>Number of analog outputs  | 2 Piece(s)   |  |
| Number of analog outputs   | 2 Piece(s)   |  |
| Number of analog outputs Analog outputs  |  |  |
| Number of analog outputs<br>Analog outputs<br>Type   | Analog output  |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current  | Analog output<br>0 24 mA   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current  | Analog output  |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage   | Analog output<br>0 24 mA   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage<br>Analog output 1  | Analog output<br>0 24 mA   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage<br>Analog output 1  | Analog output<br>0 24 mA<br>0 11 V   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage<br>Analog output 1  | Analog output<br>0 24 mA<br>0 11 V   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage<br>Analog output 1<br>Type<br>Analog output 2   | Analog output<br>0 24 mA<br>0 11 V   |  |
| Number of analog outputs<br>Analog outputs<br>Type<br>Current<br>Voltage<br>Analog output 1<br>Type<br>Analog output 2<br>Type   | Analog output<br>0 24 mA<br>0 11 V<br>Voltage  |  |
| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable   | Analog output<br>0 24 mA<br>0 11 V<br>Voltage<br>Current   |  |
| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable         Output current, max.  | Analog output<br>0 24 mA<br>0 11 V<br>Voltage<br>Current<br>100 mA   |  |
| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable         Output current, max.         Input resistance   | Analog output<br>0 24 mA<br>0 11 V<br>Voltage<br>Current<br>100 mA<br>6,000 Ω  |  |
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| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs  | Analog output<br>0 24 mA<br>0 11 V<br>Voltage<br>Current<br>100 mA<br>6,000 Ω<br>2 Piece(s)<br>Inputs/outputs selectable<br>DC   |  |
| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs                                   | Analog output<br>$0 \dots 24 \text{ mA}$<br>$0 \dots 11 \text{ V}$<br>Voltage<br>Current<br>100  mA<br>$6,000 \Omega$<br>2  Piece(s)<br>Inputs/outputs selectable<br>DC<br>Typ. U <sub>B</sub> / 0 V       |  |
| Number of analog outputs         Analog outputs         Type         Current         Voltage         Analog output 1         Type         Analog output 2         Type         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Voltage type, inputs      | Analog output<br>$0 \dots 24 \text{ mA}$<br>$0 \dots 11 \text{ V}$<br>Voltage<br>Current<br>100  mA<br>$6,000 \Omega$<br>2  Piece(s)<br>Inputs/outputs selectable<br>DC<br>Typ. U <sub>B</sub> / 0 V<br>DC |  |
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| 1 ms                         |
|------------------------------|
|                              |
|                              |
| 450 ms                       |
| 2.32 ms                      |
| 30 µs                        |
|                              |
| IO-Link                      |
|                              |
| Configuration via software   |
| Service                      |
|                              |
| 2 Piece(s)                   |
| Axial                        |
|                              |
|                              |
| Configuration interface      |
| Signal IN                    |
| Signal OUT                   |
| Voltage supply<br>Connector  |
| M12                          |
| Male                         |
| Metal                        |
| 8 -pin                       |
| A-coded                      |
| A-00000                      |
|                              |
| Connection to transmitter    |
| Connector                    |
| M12                          |
| Female                       |
| Metal                        |
| 5 -pin                       |
| A-coded                      |
|                              |
| Cubic                        |
| 29 mm x 35.4 mm x 1,355 mm   |
| Metal                        |
| Aluminum                     |
| Plastic                      |
| 1,450 g                      |
| Silver                       |
| Groove mounting              |
| Via optional mounting device |
|                              |
| LED                          |
| OLED display                 |
| 2 Piece(s)                   |
| Software                     |
|                              |
| Teach-in                     |
|                              |

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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                 |           |

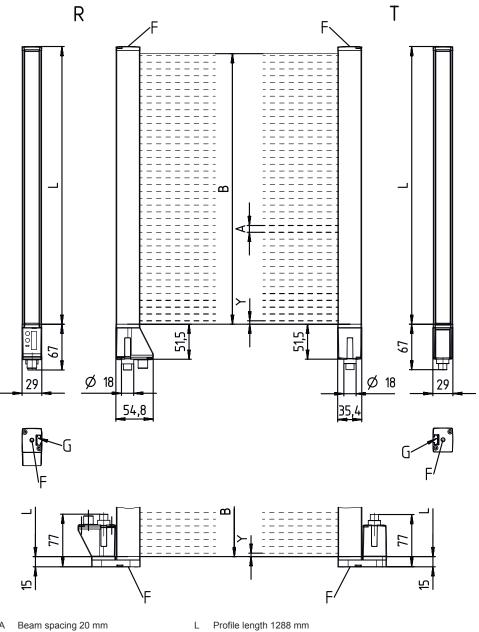
| Degree of protection | IP 65         |  |
|----------------------|---------------|--|
| Protection class     | III           |  |
| Certifications       | c UL US       |  |
| Standards applied    | IEC 60947-5-2 |  |

| 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 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | EC002549 |
| ETIM 7.0              | EC002549 |
| ETIM 8.0              | EC002549 |
| ETIM 9.0              | EC002549 |
|                       |          |

## **Dimensioned drawings**

All dimensions in millimeters



Beam spacing 20 mm А

Fastening groove

- В Measurement field length 1270 mm
- F M6 thread

G

- Т R Receiver
  - 5 mm Υ

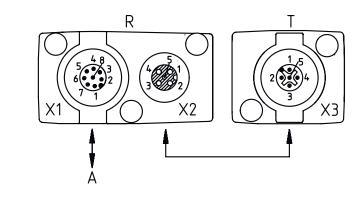
Transmitter

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## **Dimensioned drawings**





A PWR / SW IN / OUT

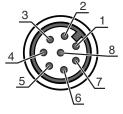
## **Electrical connection**

**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    |  |
|   |         |  |

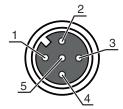


#### **Connection 2**

| 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**

LED

1

2

| on and display           | LEUZE                                  |  |
|--------------------------|--|--|
| Display                  | Meaning                                |  |
| Green, continuous light  | Operational readiness                  |  |
| Green, flashing          | Teach / error                          |  |
| Yellow, continuous light | Light path free, with function reserve |  |

No function reserve

Object detected

01170

#### Suitable transmitters

Off

Yellow, flashing

| <br>Part no. | Designation                | Article                      | Description   |
|--------------|----------------------------|------------------------------|---|
| 50119430     | CML720i-T20-<br>1270.A-M12 | Light curtain<br>transmitter | Operating range: 0.3 7 m<br>Connection: Connector, M12, Axial, 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  |
| 22   | 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 | ith 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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## Configuration devices

|             | Part no. | Designation                  | Article         | Description  |
|-------------|----------|------------------------------|-----------------|--|
| Citis State | 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  |
|----|----------|-------------|------------------|--|
| ц. | 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   |
|---|--|
| A | Solution A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page. |