

## **Technical data sheet Light curtain receiver** Part no.: 50119277 CML730i-R20-2070.R/CV-M12



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 eng • 2025-04-03

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## **Technical data**

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#### Basic data

| Series              | 730                                   |  |
|---------------------|---------------------------------------|--|
| Operating principle | Throughbeam principle                 |  |
| Device type         | Receiver                              |  |
| Contains            | Accessories for the use of the BT-2R1 |  |
| Application         | Detection of transparent objects      |  |
|                     | Object measurement                    |  |
|                     |                                       |  |
| Special version     |                                       |  |

Special version

Diagonal-beam scanning Parallel-beam scanning

Crossed-beam scanning

Polarity reversal protection

#### **Optical data**

| Operating range                    | 0.3 9.5 m                  |  |
|------------------------------------|----------------------------|--|
| Operating range                    | Guaranteed operating range |  |
| Operating range, transparent media | 0.3 3.5 m                  |  |
| Operating range limit              | 0.2 12 m                   |  |
| Operating range limit              | Typical operating range    |  |
| Measurement field length           | 2,070 mm                   |  |
| Number of beams                    | 104 Piece(s)               |  |
| Beam spacing                       | 20 mm                      |  |
| Measurement data                   |                            |  |
| Minimum object diameter            | 30 mm                      |  |

#### **Electrical data**

Protective circuit

|                               | 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          | 0 435 mA, The specified values refer<br>to the entire package consisting of trans-<br>mitter and receiver. |  |
| Outputs                       |  |  |
| Number of analog outputs      | 2 Piece(s)   |  |
|                               |  |  |
| Analog outputs                |  |  |
| Туре                          | Analog output  |  |
| Current                       | 0 24 mA  |  |
| Voltage                       | 0 11 V   |  |
|                               |  |  |
| Analog output 1               |  |  |
| Туре                          | Voltage  |  |
|                               |  |  |

Current

Analog output 2 Туре

| Inputs/outputs selectable           |                            |
|-------------------------------------|----------------------------|
| Output current, max.                | 100 mA                     |
| Input resistance                    | 6,000 Ω                    |
| Number of inputs/outputs selectable | ,                          |
| 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                  |
|                                     | low: ≤ 4 V                 |
|                                     |                            |
| Input/output 1                      |                            |
| Activation/disable delay            | 1 ms                       |
| Time behavior                       |                            |
|                                     |                            |
| Readiness delay                     | 450 ms                     |
| Cycle time                          | 1.19 ms                    |
| Response time per beam              | 10 µs                      |
| Service interface                   |                            |
|                                     |                            |
| Туре                                | 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                 |
| The state of the state of the state | Voltage supply             |
| Type of connection                  | Connector<br>M12           |
| Thread size                         | Male                       |
| Type<br>Material                    | Metal                      |
| No. of pins                         | 8 -pin                     |
| Encoding                            | A-coded                    |
| Lisoung                             |                            |
| 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 2,103 mm |
| Housing material                    | Metal                      |
| Metal housing                       | Aluminum                   |
| Lens cover material                 | Plastic                    |
| Net weight                          | 2,250 g                    |
|                                     |                            |
| Housing color                       | Silver                     |

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Type of fastening

Via optional mounting device

Groove mounting

## **Technical data**

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#### **Operation and display**

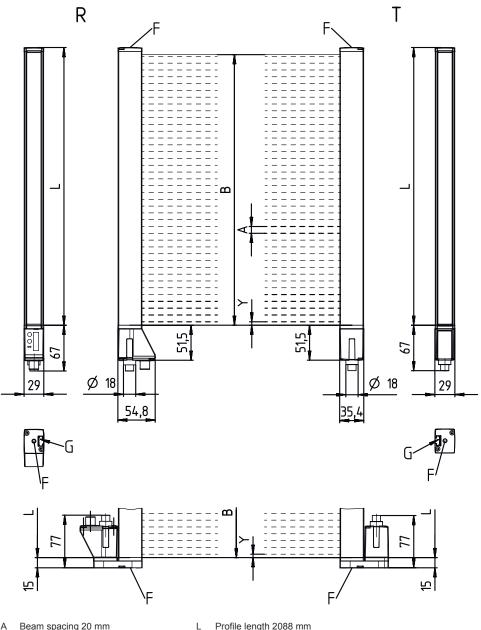
| Type of display   | LED                       |  |
|---|---------------------------|--|
|   | OLED display              |  |
| Number of LEDs  | 2 Piece(s)                |  |
| Type of configuration   | Software                  |  |
|   | Teach-in                  |  |
| Operational controls  | Membrane keyboard         |  |
|   |                           |  |
| Environmental data  |                           |  |
|   |                           |  |
| Ambient temperature, operation  | -30 60 °C                 |  |
| Ambient temperature, operation<br>Ambient temperature, storage                    | -30 60 °C<br>-40 70 °C    |  |
| Ambient temperature, storage  |                           |  |
|   |                           |  |
| Ambient temperature, storage  |                           |  |
| Ambient temperature, storage  | -40 70 °C                 |  |
| Ambient temperature, storage<br>Certifications<br>Degree of protection            | -40 70 °C                 |  |
| Ambient temperature, storage Certifications Degree of protection Protection class | -40 70 °C<br>IP 65<br>III |  |

#### 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

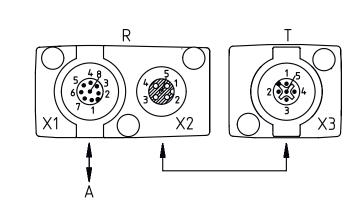


- Beam spacing 20 mm А
- В Measurement field length 2070 mm
- F M6 thread G
  - Fastening groove
- Profile length 2088 mm Т
  - Transmitter
- R Receiver
- 5 mm Υ

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### **Dimensioned drawings**





A PWR / SW IN / OUT

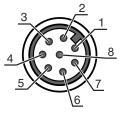
## **Electrical connection**

**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    |  |  |
|   |         |  |  |

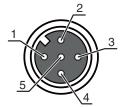


#### **Connection 2**

| 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 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

| <br>Part no. | Designation                | Article                      | Description   |
|--------------|----------------------------|------------------------------|---|
| 50118978     | CML730i-T20-<br>2070.R-M12 | Light curtain<br>transmitter | Operating range: 0.3 9.5 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  |
| 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      |   |
| A list wi | th all available device types can be found on the Leuze website at www.leuze.com.   |

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#### 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

|   | 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

|    | Part no. | Designation                  | Article         | Description  |
|----|----------|------------------------------|-----------------|--|
| 16 | 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.