

Technical data sheet Light curtain receiver Part no.: 50123034 CML720i-R20-310.R/PB-M12



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 changes

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Technical data

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| 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 | 0.3 7 m |
| Operating range | Guaranteed operating range |
| Operating range limit | 0.2 9 m |
| Operating range limit | Typical operating range |
| Measurement field length | 310 mm |
| Number of beams | 16 Piece(s) |
| Beam spacing | 20 mm |
| | 20 1111 |
| Measurement data | 20 |
| Minimum object diameter | 30 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 | 0 135 mA, The specified values refer to the entire package consisting of trans- mitter and receiver. |
| | |
| Inpute/outpute coloctable | |
| Inputs/outputs selectable | 100 mA |
| Output current, max. | 100 mA 6 000 Q |
| Output current, max. Input resistance | 6,000 Ω |
| Output current, max. Input resistance Number of inputs/outputs selectable | 6,000 Ω 2 Piece(s) |
| Output current, max. Input resistance Number of inputs/outputs selectable Type | 6,000 Ω 2 Piece(s) Inputs/outputs selectable |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. $U_{\rm B}$ / 0 V DC |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. $U_{\rm B}$ / 0 V DC |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: \geq 6V Iow: \leq 4 V |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Cycle time | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms 1 ms |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Cycle time | $6,000 \Omega$ 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms 1 ms |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Cycle time Response time per beam | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms 1 ms |
| Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Cycle time Response time per beam Interface | 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V Iow: ≤ 4 V 1 ms 30 μs |

| 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 |
| - unotion | Connection to transmitter |
| | 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 |
| | |
| Connection 2 | |
| Function | BUS IN |
| Type of connection | BUS OUT Connector |
| Type of connection Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | B-coded |
| Mechanical data | |
| | Qubia |
| Design | Cubic 29 mm x 35.4 mm x 343 mm |
| Dimension (W x H x L) Housing material | Metal |
| Metal housing | Aluminum |
| Lens cover material | Plastic |
| Net weight | 600 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 |
| Environmental data | |
| Ambient temperature, operation | -30 60 °C |
| Ambient temperature, storage | -40 70 °C |

Technical data

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Certifications

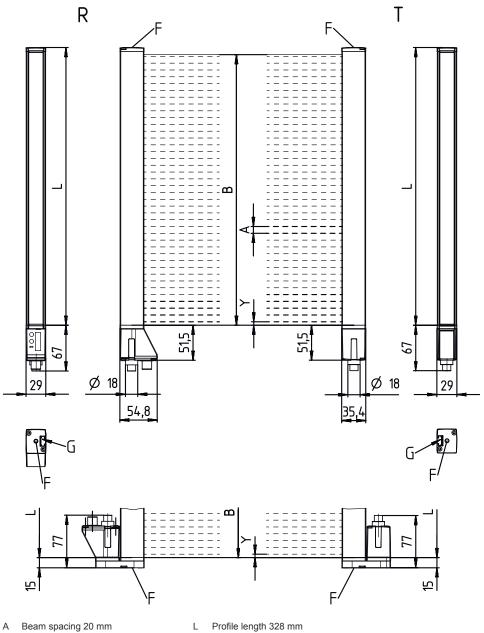
| Degree of protection | IP 65 |
|----------------------|---------------|
| Protection class | III |
| Approvals | c UL US |
| Standards applied | IEC 60947-5-2 |

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



В

- Measurement field length 310 mm
- F M6 thread G Fastening groove
- R Receiver

Т

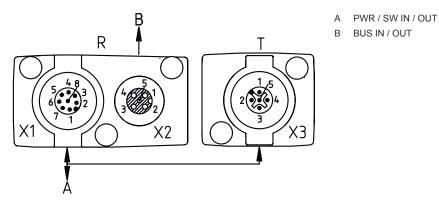
Υ 5 mm

Transmitter

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Dimensioned drawings





Electrical connection

Connection 1

| Function | Configuration interface |
|--------------------|---------------------------|
| | Connection to transmitter |
| | 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 | RS 485 Tx+ | | |
| 7 | RS 485 Tx+ | | |
| 8 | FE/SHIELD | | |
| | | | |

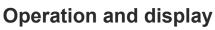


Connection 2

| Function | BUS IN |
|--------------------|-----------|
| | BUS OUT |
| Type of connection | Connector |
| Thread size | M12 |
| Туре | Female |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | B-coded |

Electrical connection

Pin Pin assignment 1 V+ 2 Tx 3 PB GND 4 Tx+ 5 FE/SHIELD



| 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 |
|--------------|---------------------------|------------------------------|---------------------------------------------------------------------------|
| 50119506 | CML720i-T20-310.R- M12 | Light curtain transmitter | Operating range: 0.3 7 m Connection: Connector, M12, Rear side, 5 -pin |

Part number code

Part designation: CML7XXi-YZZ-AAAA.BCCCDDD-EEEFFF

| CML | Operating principle Measuring light curtain |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 7XXi | Series 720i: 720i series 730i: 730i series |
| Y | Device type T: transmitter R: receiver |
| 22 | Beam spacing 05: 5 mm 10: 10 mm 20: 20 mm 40: 40 mm |
| AAAA | Measurement field length [mm], dependent on beam spacing |
| В | Equipment A: Axial connector outlet R: Rear connector outlet |
| ccc | Interface L: IO-Link /CN: CANopen /PB: PROFIBUS /PN: PROFINET /CV: Analog current and voltage output /D3: RS 485 Modbus |



Part number code



| DDD | Special equipment -PS: Power Setting |
|-----|----------------------------------------------------------------------------------------------|
| EEE | Electrical connection M12: M12 connector |
| FFF | -EX: Explosion protection |
| | Note |
| | |
| A | S A list with 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. 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 |
|--------------|------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 50132079 | KD U-M12-5A-V1- 050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC |

Connection technology - Y distribution cables

| | Part no. | Designation | Article | Description |
|--|----------|-----------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 50118183 | K-Y1 M12A-5m- M12A-S-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin Shielded: Yes Cable length fork 1: 5,000 mm Cable length fork 2: 150 mm Sheathing material: PUR |

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Accessories

Mounting technology - Mounting brackets

| Part no. | Designation | Article | Description |
|--------------|----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 50142900 | BT 700M.5-2SET | Mounting device set | Design of mounting device: Bracket mounting Fastening, at system: Through-hole mounting, T slotted hole Mounting bracket, at device: Screw type, Sliding block Type of mounting device: Rigid Material: Steel |

Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|-----|----------|-------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ęę. | 429029 | BT-2RG | Mounting bracket set | Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic |

Configuration devices

| Part no. | Designation | Article | Description |
|--------------|------------------------------|-----------------|--------------------------------------------------------------------------|
| 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20 |

Services

| | Part no. | Designation | Article | Description |
|----|----------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| J. | S981001 | CS10-S-110 | Start-up support | Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not 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. Conditions: Price not including travel costs and, if applicable, accommodation expenses. |

| | Note |
|---|-----------------------------------------------------------------------------------------------------------------------------|
| 6 | ☆ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page. |