



the sensor people





Figure can vary

Part no.: 50122903 CML720i-R05-1840.R/PB-M12 Light curtain receiver





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- Electrical connection
- · Operation and display
- Suitable transmitters
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Technical data

| Basic data | | | |
|---|---|--|--|
| Series Series | 720 | | |
| Operating principle | Throughbeam principle | | |
| Device type | Receiver | | |
| Contains | Accessories for the use of the BT-2R1 | | |
| Application | Object measurement | | |
| 7.65.000.00 | | | |
| Special design | | | |
| Special design Special design | 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 | 1,840 mm | | |
| Number of beams | 368 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 | | | |
| O | | | |
| Supply voltage U _B | 18 30 V , DC | | |
| Residual ripple | 18 30 V , DC 0 15 % , From U _B | | |
| | | | |
| Residual ripple | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package con- | | |
| Residual ripple Open-circuit current | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package con- | | |
| Residual ripple Open-circuit current Inputs/outputs selectable | 0 15 % , From UB 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω | | |
| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. | | |
| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. Input resistance | 0 15 % , From UB 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω | | |
| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs | 0 15 % , From UB 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC | | |
| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. Input resistance Number of inputs/outputs selectable Type | 0 15 % , From UB 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable | | |
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| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V | | |
| Residual ripple Open-circuit current Inputs/outputs selectable Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V | | |
| Residual ripple Open-circuit current Inputs/outputs selectable 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 | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V low: ≤4V | | |
| Residual ripple Open-circuit current Inputs/outputs selectable 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 | 0 15 % , From U _B 0 350 mA , The specified values refer to the entire package consisting of transmitter and receiver. 100 mA 6,000 Ω 2 Piece(s) Inputs/outputs selectable DC Typ. U _B / 0 V DC high: ≥6V low: ≤4V | | |



| Interface | | | |
|-----------------------|---|--|--|
| Type | PROFIBUS DP | | |
| PROFIBUS DP | | | |
| Function | Process | | |
| | | | |
| Service interface | | | |
| Type | IO-Link | | |
| IO-Link | 10 Ellik | | |
| Function | Configuration via software | | |
| | Service | | |
| | | | |
| Connection | | | |
| Number of connections | 2 Piece(s) | | |
| Plug outlet | Rear side | | |
| 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 | | |
| 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 | | |
| | | | |
| Mechanical data | | | |
| Design | Cubic | | |
| Dimension (W x H x L) | 29 mm x 35.4 mm x 1,863 mm | | |
| Housing material | Metal , Aluminum | | |
| Lens cover material | Plastic | | |
| Net weight | 2,000 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 | | |
| | IGaCII*III | | |

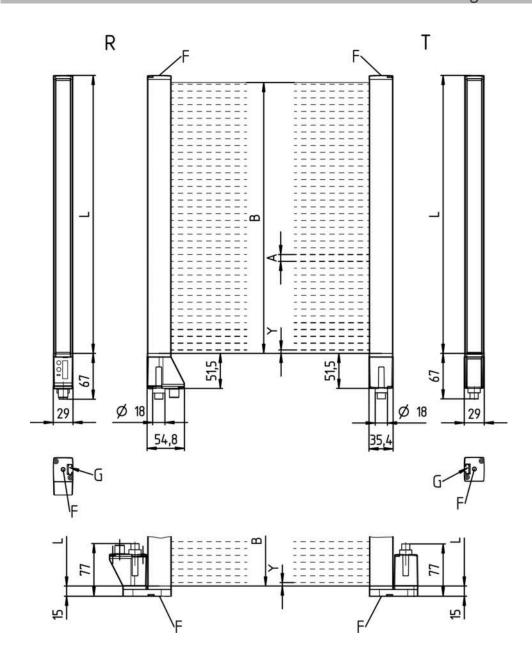


| Environmental data | | | | |
|--------------------------------|---------------|---------------|--|--|
| Ambient temperature, operation | -30 60 °C | -30 60 °C | | |
| Ambient temperature, storage | -40 70 °C | -40 70 °C | | |
| | | | | |
| Certifications | | | | |
| Degree of protection | IP 65 | | | |
| Protection class | III | | | |
| Certifications | c CSA US | | | |
| Standards applied | IEC 60947-5-2 | IEC 60947-5-2 | | |
| | | | | |
| Classification | | | | |
| Customs tariff number | 90314990 | | | |
| eCl@ss 8.0 | 27270910 | | | |
| eCl@ss 9.0 | 27270910 | 27270910 | | |
| ETIM 5.0 | EC002549 | EC002549 | | |
| ETIM 6.0 | EC002549 | | | |
| | | | | |

Dimensioned drawings

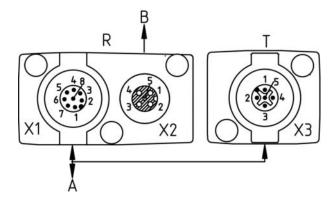
All dimensions in millimeters





- A Beam spacing 5 mm B Measurement field length 1840 mm
- F M6 thread
- G Fastening groove
- L Profile length 1848 mm
- T Transmitter
- R Receiver
- Y 2.5 mm



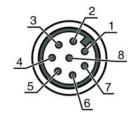


A PWR / SW IN/OUT B BUS IN / OUT

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 | |

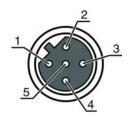
| Pin | Pin assignment |
|-----|----------------|
| 1 | V+ |
| 2 | I/O 1 |
| 3 | GND |
| 4 | IO-Link |
| 5 | I/O 2 |
| 6 | RS 485 Tx+ |
| 7 | RS 485 Tx+ |
| 8 | FE/SHIELD |



| 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 |



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



Operation and display

LEDs

| LED | Display | Meaning |
|-----|--------------------------|--|
| 1 | Green, continuous light | Operational readiness |
| | Green, flashing | Teach / error |
| | | Measurement frequency display |
| 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 |
|----------|----------------------------|------------------------------|---|
| 50119471 | CML720i- T05-1840.R-M12 | Light curtain transmitter | Operating range: 0.1 3.5 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 |
| ZZ | 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: connector outlet, axial 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 | | |
|-----|--|--|--|
| DDD | Special equipment: -PS: Power Setting | | |
| EEE | Electrical connection: M12: M12 connector | | |
| FFF | -EX: Explosion protection: | | |

Note

A list with all available device types can be found on the Leuze electronic 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 Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |

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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 |
| | 50123265 | K-YPB M12A-5m- M12A-S-PUR | Interconnection cable | Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 5 -pin Connection 2: Connector, M12, Axial, Female, B-coded, 5 -pin Connection 3: Connector, M12, Axial, Male, B-coded, 5 -pin Shielded: Yes Cable length fork 1: 5,000 mm Cable length fork 2: 250 mm Sheathing material: PUR |

Mounting technology - Mounting brackets

| Part no. | Designation | Article | Description |
|----------|----------------|---------------------|--|
| 50142900 | BT 700M.5-2SET | Mounting device set | Contains: 2x mounting brackets, 1 teach template, 4 M6 x 10 screws 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 |
|-----|----------|-------------|----------------------|---|
| EE. | 429046 | BT-2R1 | Mounting bracket set | Contains: 2x BT-R swivel mount, 1 cylinder for mounting on the light curtain Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic |

| | Part no. | Designation | Article | Description |
|-----|----------|---------------------------------|-----------------|--|
| 165 | 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 |
|--|----------|-------------|------------------|---|
| | 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. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment. |

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| Part no. | Designation | Article | Description |
|----------|-------------|------------------|---|
| \$981005 | 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. 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 electronic website in the Download tab of the article detailed page.