

Technical data sheet Light curtain receiver

Part no.: 50131941

CML720i-R10-320.R/PN-M12



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Technical 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 | Guaranteed operating range |
|--------------------------|----------------------------|
| Operating range | 0.3 7 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.2 9 m |
| Measurement field length | 320 mm |
| Number of beams | 32 Piece(s) |
| Beam spacing | 10 mm |
| | |

Measurement data

| Minimum | object | diameter | 20 m | ım |
|---------|--------|----------|------|----|
| | | | | |

Electrical data

| Protective circuit | Polarity reversal protection |
|--------------------|------------------------------|
| | Short circuit protected |
| | Transient protection |

Performance data

| i orrormanoo aata | |
|-------------------------------|--|
| Supply voltage U _B | 18 30 V, DC |
| Residual ripple | 0 15 %, From U _B |
| Open-circuit current | 0 165 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

Inputs/outputs selectable

| Output current, max. | 100 mA |
|-------------------------------------|---------------------------|
| Input resistance | 6,000 Ω |
| Number of inputs/outputs selectable | 2 Piece(s) |
| Туре | Inputs/outputs selectable |
| Voltage type, outputs | DC |
| Switching voltage, outputs | Typ. U _B / 0 V |
| Voltage type, inputs | DC |
| Switching voltage, inputs | high: ≥6V |
| | low: ≤4V |
| | |

Input/output 1

| Activation/disable delay | 1 ms |
|--------------------------|------|
|--------------------------|------|

Timing

| Readiness delay | 1,500 ms |
|------------------------|----------|
| Cycle time | 1.36 ms |
| Response time per beam | 30 μs |

Interface

| OFINE1 |
|--------|
| |

| Profinet | |
|----------------------|-------------|
| Function | Process |
| Conformance class | В |
| Protocol | PROFINET RT |
| Switch functionality | Integrated |
| Transmission speed | 10 Mbit/s |
| | 100 Mhit/s |

Service interface

| Ty | уре | IO-Link |
|----|----------|----------------------------|
| | IO-Link | |
| | Function | Configuration via software |
| | | Service |

Connection

| Number of connections | 3 Piece(s) |
|-----------------------|------------|
| Plug outlet | Rear side |

Connection 1

| Connection 1 | |
|--------------------|---------------------------|
| Function | Configuration interface |
| | Connection to transmitter |
| | 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 |
| | |

Connection 2

| Function | BUS IN |
|--------------------|-----------|
| Type of connection | Connector |
| Thread size | M12 |
| Туре | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |

Connection 3

| Connection 3 | |
|--------------------|-----------|
| Function | BUS OUT |
| Type of connection | Connector |
| Thread size | M12 |
| Туре | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |

Mechanical data

| Design | Cubic |
|-----------------------|------------------------------|
| Dimension (W x H x L) | 29 mm x 35.4 mm x 343 mm |
| 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 |

Technical data



Operation and display

Certifications

Standards applied

| Type of display | LED |
|---|------------------------|
| | OLED display |
| Number of LEDs | 4 Piece(s) |
| Type of configuration | Software |
| | Teach-in |
| Operational controls | Membrane keyboard |
| Environmental data | |
| | |
| Ambient temperature, operation | -30 60 °C |
| Ambient temperature, operation Ambient temperature, storage | -30 60 °C -40 70 °C |
| 1 / 1 | |
| Ambient temperature, storage | |
| Ambient temperature, storage Certifications | -40 70 °C |

c CSA US

IEC 60947-5-2

Classification

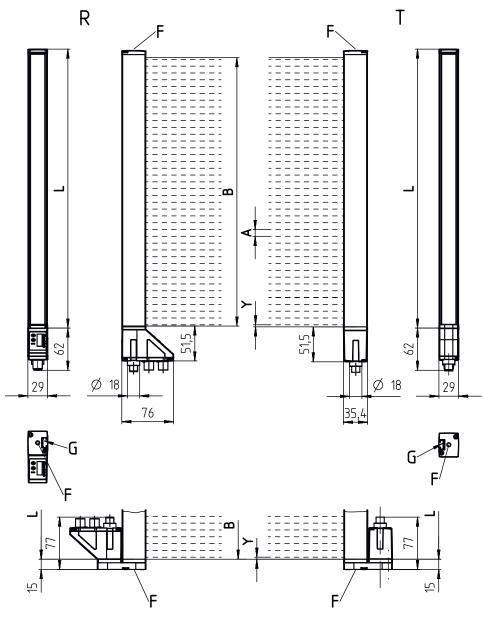
| Customs tariff number | 90314990 | |
|-----------------------|----------|--|
| eCl@ss 5.1.4 | 27270910 | |
| eCl@ss 8.0 | 27270910 | |
| eCl@ss 9.0 | 27270910 | |
| eCl@ss 10.0 | 27270910 | |
| eCl@ss 11.0 | 27270910 | |
| ETIM 5.0 | EC002549 | |
| ETIM 6.0 | EC002549 | |
| ETIM 7.0 | EC002549 | |

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Dimensioned drawings



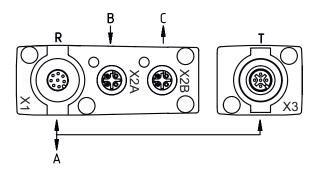
All dimensions in millimeters



- B Measurement field length 320 mm
- F M6 thread
- G Fastening groove
- L Profile length 328 mm
- T Transmitter
- R Receiver
- Y 5 mm

Dimensioned drawings



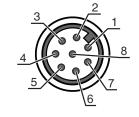


- PWR / SW IN / OUT
- **BUS IN**
- **BUS OUT**

Electrical connection

| Connection 1 | X1 |
|--------------------|---------------------------|
| 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 |

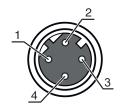
| Pin | Pin assignment |
|-----|----------------|
| 1 | V+ |
| 2 | 1/0 1 |
| 3 | GND |
| 4 | IO-Link |
| 5 | I/O 2 |
| 6 | RS 485 Tx+ |
| 7 | RS 485 Tx+ |
| 8 | FE/SHIELD |
| | |



| Connection 2 | X2A |
|--------------------|-----------|
| Function | BUS IN |
| Type of connection | Connector |
| Thread size | M12 |
| Туре | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |

| Pin | Pin assignment |
|-----|----------------|
| 1 | TD0+ |
| 2 | RD0+ |
| 3 | TD0- |
| 4 | RD0- |

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Electrical connection



| Connection 3 | X2B | |
|--------------------|-----------|--|
| Function | BUS OUT | |
| Type of connection | Connector | |
| Thread size | M12 | |
| Туре | Female | |
| Material | Metal | |
| No. of pins | 4 -pin | |
| Encoding | D-coded | |

| Pin | Pin assignment |
|-----|----------------|
| 1 | TD0+ |
| 2 | RD0+ |
| 3 | TD0- |
| 4 | RD0- |



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 |
| 3 | Green, continuous light (at the X2A / X2B connector) | Link |
| 4 | Yellow, continuous light (at the X2A / X2B connector) | Activity |

Suitable transmitters

| Part no. | Designation | Article | Description |
|----------|---------------------------|------------------------------|---|
| 50119487 | CML720i-T10-320.R- M12 | Light curtain transmitter | Operating range: 0.3 6 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 |
| Υ | 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 |

Part number code



| 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 website at www.leuze.com.

Notes



Observe intended use!



- \$ This product is not a safety sensor and is not intended as personnel protection.
- Nonly 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 |
| W | 50135074 | KS ET-M12-4A-P7- 050 | Connection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4-pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |

Accessories



Connection technology - Interconnection cables

| | Part no. | Designation | Article | Description |
|--|----------|---------------------------------|-----------------------|---|
| | 50135081 | KSS ET-M12-4A- RJ45-A-P7-050 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |

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 |

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 |
|-----|----------|-------------|----------------------|---|
| gg. | 429046 | BT-2R1 | 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 |
|-----|----------|------------------------------|-----------------|--|
| 165 | 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20 |

Accessories



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. |
| 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. 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 website in the Download tab of the article detailed page.