

## Technical data sheet Light curtain receiver

Part no.: 50119648

CML720i-R10-960.A/CN-M12

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For illustration purposes only



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 | 960 mm                     |
| Number of beams          | 96 Piece(s)                |
| Beam spacing             | 10 mm                      |

Measurement data

|                         |       |
|-------------------------|-------|
| Minimum object diameter | 20 mm |
|-------------------------|-------|

Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | 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 ... 270 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)                |
| Type                                | 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<br>low: ≤ 4 V   |

Input/output 1

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

Time behavior

|                        |         |
|------------------------|---------|
| Readiness delay        | 450 ms  |
| Cycle time             | 3.28 ms |
| Response time per beam | 30 μs   |

Interface

|                  |         |
|------------------|---------|
| Type             | CANopen |
| CANopen Function | Process |

Service interface

|                  |                                       |
|------------------|---------------------------------------|
| Type             | IO-Link                               |
| IO-Link Function | Configuration via software<br>Service |

Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
| Plug outlet           | Axial      |

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    |
|                    | BUS OUT   |
| Type of connection | Connector |
| Thread size        | M12       |
| Type               | 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 1,035 mm                      |
| Housing material      | Metal                                           |
| Metal housing         | Aluminum                                        |
| Lens cover material   | Plastic                                         |
| Net weight            | 1,150 g                                         |
| Housing color         | Silver                                          |
| Type of fastening     | Groove mounting<br>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

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



- |   |                                 |   |                       |
|---|---------------------------------|---|-----------------------|
| A | Beam spacing 10 mm              | L | Profile length 968 mm |
| B | Measurement field length 960 mm | T | Transmitter           |
| F | M6 thread                       | R | Receiver              |
| G | Fastening groove                | Y | 5 mm                  |

Dimensioned drawings



Electrical connection

Connection 1

|                    |                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------|
| Function           | Configuration interface<br>Connection to transmitter<br>Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection | Connector                                                                                         |
| Thread size        | M12                                                                                               |
| Type               | 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<br>BUS OUT |
| Type of connection | Connector         |
| Thread size        | M12               |
| Type               | Female            |
| Material           | Metal             |
| No. of pins        | 5 -pin            |
| Encoding           | A-coded           |

Electrical connection

| Pin | Pin assignment |
|-----|----------------|
| 1   | FE/SHIELD      |
| 2   | n.c.           |
| 3   | CAN GND        |
| 4   | CAN H          |
| 5   | CAN L          |



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

|  | Part no. | Designation           | Article                   | Description                                                               |
|--|----------|-----------------------|---------------------------|---------------------------------------------------------------------------|
|  | 50119410 | CML720i-T10-960.A-M12 | Light curtain transmitter | Operating range: 0.3 ... 7 m<br>Connection: Connector, M12, Axial, 5 -pin |

Part number code

Part designation: CML7XXi-YYZ-AAAA.BCCDDDD-EEEEFF

|      |                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| CML  | <b>Operating principle</b><br>Measuring light curtain                                                                                            |
| 7XXi | <b>Series</b><br>720i: 720i series<br>730i: 730i series                                                                                          |
| Y    | <b>Device type</b><br>T: transmitter<br>R: receiver                                                                                              |
| ZZ   | <b>Beam spacing</b><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                                                                                         |
| B    | <b>Equipment</b><br>A: Axial connector outlet<br>R: Rear connector outlet                                                                        |
| CCC  | <b>Interface</b><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 |

Part number code

|     |                                             |
|-----|---------------------------------------------|
| DDD | Special equipment<br>-PS: Power Setting     |
| EEE | Electrical connection<br>M12: M12 connector |
| FFF | -EX: Explosion protection                   |

| Note                                                                             |                                                                                                                                |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|  | A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> . |

Notes

| Observe intended use!                                                            |                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>This product is not a safety sensor and is not intended as personnel protection.</li><li>The product may only be put into operation by competent persons.</li><li>Only use the product in accordance with its intended use.</li></ul> |

| For UL applications:                                                               |                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><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/ CYJV7 or PVVA/PVVA7)</li></ul> |

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<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC |

Connection technology - Interconnection cables

|                                                                                     | Part no. | Designation                 | Article               | Description                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|----------|-----------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50129781 | KDS DN-M12-5A-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 |

## Accessories

### 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<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 5,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR                                |
|                                                                                                                                                                   | 50118185 | K-YCN M12A-M12A-S-PUR   | Interconnection cable | Suitable for interface: CANopen<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length fork 1: 250 mm<br>Cable length fork 2: 350 mm<br>Sheathing material: PUR |

### Connection technology - Terminating resistors

|                                                                                   | Part no. | Designation | Article         | Description                                                                                                                 |
|-----------------------------------------------------------------------------------|----------|-------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------|
|  | 50040099 | TS 01-5-SA  | Terminator plug | Suitable for: DeviceNet, CANopen<br>Function: Bus termination<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin |

### Mounting technology - Mounting brackets

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

## 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.<br>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.<br>Conditions: Price not including travel costs and, if applicable, accommodation expenses.                                                          |

Accessories

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