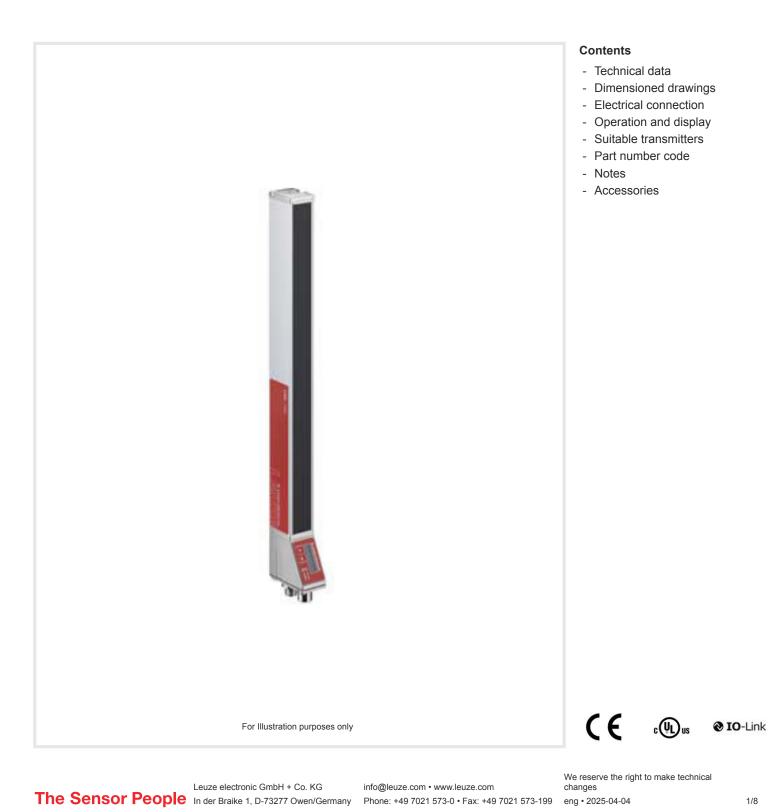


# **Technical data sheet** Light curtain receiver Part no.: 50119736 CML720i-R05-1760.A/L-M12



## **Technical data**

| Series                                              | 720                                                                                                        |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Operating principle                                 | Throughbeam principle                                                                                      |
| Device type                                         | Receiver                                                                                                   |
| Contains                                            | 2x BT-NC sliding block                                                                                     |
| Application                                         | Object measurement                                                                                         |
| Application                                         | object medourement                                                                                         |
| Special version                                     |                                                                                                            |
| Special version                                     | Crossed-beam scanning                                                                                      |
|                                                     | Diagonal-beam scanning                                                                                     |
|                                                     | Parallel-beam scanning                                                                                     |
| Optical data                                        |                                                                                                            |
| Operating range                                     | 0.1 3.5 m                                                                                                  |
| Operating range                                     | Guaranteed operating range                                                                                 |
| Operating range limit                               | 0.1 4.5 m                                                                                                  |
| Operating range limit                               | Typical operating range                                                                                    |
| Measurement field length                            | 1,760 mm                                                                                                   |
| Number of beams                                     | 352 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                                    |                                                                                                            |
| Supply voltage U <sub>B</sub>                       | 18 30 V, DC                                                                                                |
| Residual ripple                                     | 0 15 %, From U <sub>B</sub>                                                                                |
| Open-circuit current                                | 0 350 mA, The specified values refer<br>to the entire package consisting of trans-<br>mitter and receiver. |
|                                                     |                                                                                                            |
| Inputs/outputs selectable                           | 400                                                                                                        |
| Output current, max.                                | 100 mA                                                                                                     |
| Input resistance                                    | 6,000 Ω                                                                                                    |
| Number of inputs/outputs selectable                 | 4 Piece(s)<br>Inputs/outputs selectable                                                                    |
| Type<br>Voltage type, outputs                       | DC                                                                                                         |
| Voltage type, outputs<br>Switching voltage, outputs |                                                                                                            |
| Voltage type, inputs                                | Typ. U <sub>B</sub> / 0 V<br>DC                                                                            |
| Switching voltage, inputs                           | high: ≥6V                                                                                                  |
| cuttoning voltage, inputs                           | low: $\leq 4 V$                                                                                            |
|                                                     | 10w. – T V                                                                                                 |
| Input/output 1                                      |                                                                                                            |
| Activation/disable delay                            | 0 1 ms                                                                                                     |
| Time behavior                                       |                                                                                                            |
|                                                     | 100                                                                                                        |
| Readiness delay                                     | 400 ms                                                                                                     |
| Cycle time                                          | 10.96 ms                                                                                                   |
| Response time per beam                              | 30 µs                                                                                                      |
| Interface                                           |                                                                                                            |
| Tupo                                                | IO-Link                                                                                                    |
| Туре                                                |                                                                                                            |
| ilhe                                                |                                                                                                            |

|    | IO-Link                                                      |                              |
|----|--------------------------------------------------------------|------------------------------|
|    | COM mode                                                     | COM2                         |
|    | Min. cycle time                                              | COM2 = 2.3 ms                |
|    | Specification                                                | V1.0.1                       |
|    |                                                              | V1.1                         |
| S  | ervice interface                                             |                              |
| Ту | уре                                                          | IO-Link                      |
|    | IO-Link                                                      |                              |
|    | Function                                                     | Configuration via software   |
|    |                                                              | Service                      |
| С  | onnection                                                    |                              |
| N  | umber of connections                                         | 2 Piece(s)                   |
| PI | ug outlet                                                    | Axial                        |
|    | O server attack to                                           |                              |
|    | Connection 1<br>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                      |
|    |                                                              |                              |
|    | 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                      |
| Μ  | echanical data                                               |                              |
| D  | esign                                                        | Cubic                        |
| Di | imension (W x H x L)                                         | 29 mm x 35.4 mm x 1,835 mm   |
| H  | ousing material                                              | Metal                        |
| Μ  | etal housing                                                 | Aluminum                     |
| Le | ens cover material                                           | Plastic                      |
|    | et weight                                                    | 1,900 g                      |
|    | ousing color                                                 | Silver                       |
| Ту | /pe of fastening                                             | Groove mounting              |
|    |                                                              | Via optional mounting device |
| 0  | peration and display                                         |                              |
| Ту | /pe of display                                               | LED                          |
|    |                                                              | OLED display                 |
|    | umber of LEDs                                                | 2 Piece(s)                   |
| Ту | pe of configuration                                          | Software                     |
|    |                                                              | Teach-in                     |
| 0  | perational controls                                          | Membrane keyboard            |
| Е  | nvironmental data                                            |                              |
| ٨  | mbient temperature operation                                 | -30 60 °C                    |
|    | mbient temperature, operation<br>mbient temperature, storage | -30 60 °C<br>-40 70 °C       |
| ~  | molent temperature, storage                                  | 10 10 0                      |
|    |                                                              |                              |

## **Technical data**

#### Certifications

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

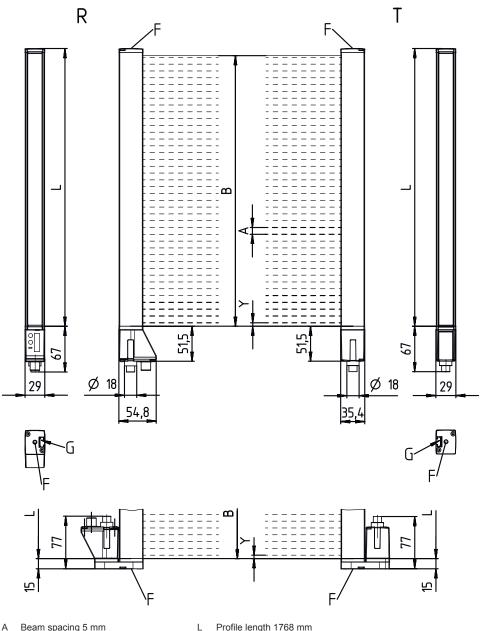
#### Classification

| 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



- Beam spacing 5 mm А
- В Measurement field length 1760 mm
- F M6 thread

G

- Fastening groove
- Profile length 1768 mm
- Transmitter
- R Receiver

Т

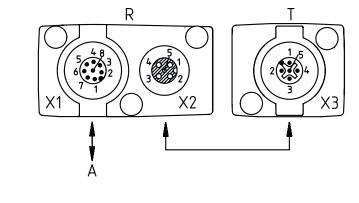
2.5 mm Υ



### **Dimensioned drawings**



# Dimensioned drawings



A PWR / SW IN / OUT

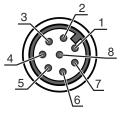
## **Electrical connection**

**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

| 3 GND   4 IO-Link   5 IO2   6 IO3   7 IO4                                     |   |         |
|-------------------------------------------------------------------------------|---|---------|
| 3     GND       4     IO-Link       5     IO2       6     IO3       7     IO4 | 1 | V+      |
| 4     IO-Link       5     IO2       6     IO3       7     IO4                 | 2 | IO1     |
| 5     IO2       6     IO3       7     IO4                                     | 3 | GND     |
| 6 IO3<br>7 IO4                                                                | 4 | IO-Link |
| 7 104                                                                         | 5 | IO2     |
|                                                                               | 6 | IO3     |
| 8 GND                                                                         | 7 | IO4     |
|                                                                               | 8 | GND     |



#### **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                                                             |
|--------------|----------------------------|------------------------------|-------------------------------------------------------------------------|
| 50119389     | CML720i-T05-<br>1760.A-M12 | Light curtain<br>transmitter | Operating range: 0.1 3.5 m<br>Connection: Connector, M12, Axial, 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       05: 5 mm       10: 10 mm       20: 20 mm       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.                                                         |

#### Notes

#### Observe intended use!

✤ This product is not a safety sensor and is not intended as personnel protection.

 $\ensuremath{^{\ensuremath{\oplus}}}$  The product may only be put into operation by competent persons.

 $\ensuremath{\mathfrak{b}}$  Only use the product in accordance with its intended use.

| For UL applications: |  |
|----------------------|--|
|----------------------|--|

b 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 unit

|             | Part no. | Designation               | Article        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|----------|---------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C. L. LILLE | 50144900 | MD 798i-11-82/L5-<br>2222 | IO-Link master | Type: IO-Link master<br>Current consumption, max.: 11,000 mA<br>Switching outputs for each sensor connection: 1 Piece(s)<br>Switching output: Transistor, PNP<br>Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP,<br>PROFINET<br>Connections: 12 Piece(s)<br>Sensor connections: 8 Piece(s)<br>Connections for voltage supply: 2 Piece(s)<br>Interface connections: 2 Piece(s)<br>Degree of protection: IP 67, IP 65, IP 69K |

#### 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 |
| Ŭ |          |                    |                  | 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 |

# Leuze

# Mounting technology - Mounting brackets

| <br>Part no. | Designation    | Article             | Description                                                                                                                                                                                                               |
|--------------|----------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>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 |

#### Configuration devices

**Accessories** 

| <br>Part no. | Designation                  | Article         | Description                                                              |
|--------------|------------------------------|-----------------|--------------------------------------------------------------------------|
| 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

以 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.