

# **Technical data sheet** Light curtain receiver

Part no.: 50123583

CML720i-R05-720.R/D3-M12



### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories





# **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          | 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 | 720 mm                     |
| Number of beams          | 144 Piece(s)               |
| Beam spacing             | 5 mm                       |
|                          |                            |

#### Measurement data

| Minimum         | object | diameter   | 10 | mm |
|-----------------|--------|------------|----|----|
| IVIIIIIIIIIIIII | ODICCE | ulallietei | 10 |    |

#### **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          | <ol> <li>215 mA, The specified values refer<br/>to the entire package consisting of trans-<br/>mitter and receiver.</li> </ol> |

### 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 |
| Switching voltage, inputs           | high: ≥6V                 |
|                                     | low: ≤ 4 V                |
|                                     |                           |

### Input/output 1

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

### Time behavior

| Cycle time             | 4.72 ms |
|------------------------|---------|
| Response time per beam | 30 μs   |

### Interface

| Туре     | RS 485 Modbus |
|----------|---------------|
| RS 485   |               |
| Function | Process       |

### Service interface

| Туре     | IO-Link                    |
|----------|----------------------------|
| IO-Link  |                            |
| Function | Configuration via software |
|          | Service                    |

### Connection

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

#### Connection 1

| Connection         |                           |
|--------------------|---------------------------|
| 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       |  |
| 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 743 mm     |
| Housing material      | Metal                        |
| Metal housing         | Aluminum                     |
| Lens cover material   | Plastic                      |
| Net weight            | 1,000 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          |
| 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           |
| 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**



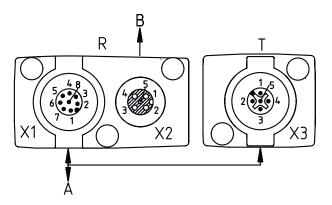
All dimensions in millimeters



- Beam spacing 5 mm
- В Measurement field length 720 mm
- M6 thread
- Fastening groove
- Profile length 728 mm
- Transmitter
- Receiver
- 2.5 mm

# **Dimensioned drawings**





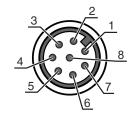
- PWR / SW IN / OUT
- BUS IN / OUT

# **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   |
|                    |           |

info@leuze.com • www.leuze.com

# **Electrical connection**



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



# **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   |
|----------|---------------------------|------------------------------|---|
| 50119457 | CML720i-T05-720.R-<br>M12 | Light curtain<br>transmitter | Operating range: 0.1 3.5 m<br>Connection: Connector, M12, Rear side, 5 -pin |

# Part number code

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

| CML  | Operating principle Measuring light curtain   |  |  |  |  |
|------|---|--|--|--|--|
| 7XXi | <b>Series</b> 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: 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 |  |  |  |  |

info@leuze.com • www.leuze.com

### Part number code



| 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.
- by 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-<br>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 - Y distribution cables

|  | Part no. | Designation                 | Article               | Description  |
|--|----------|-----------------------------|-----------------------|--|
|  | 50118183 | K-Y1 M12A-5m-<br>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 |

### **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   |
|----------|-------------|----------------------|---|
| 429029   | BT-2RG      | Mounting bracket set | Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 360°<br>Material: Metal, Plastic |

# 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. |
| 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.  |



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