# SMART SENSOR BUSINESS

## Leuze electronic
the sensor people

Part no.: 50131821
CML730i-R20-790.R/PN-M12
Light curtain receiver

Figure can vary

# Contents

- Technical data
- Dimensioned drawings
- Electrical connection
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## Technical data

| Basic data | |
|---|---|
| Series | 730 |
| Operating principle | Throughbeam principle |
| Device type | Receiver |
| Contains | Accessories for the use of the BT-2R1 |
| Application | Detection of transparent objects<br>Object measurement |

| Optical data | |
|---|---|
| Operating range | Guaranteed operating range |
| Operating range | 0.3 ... 9.5 m |
| Operating range, transparent media | 0.3 ... 3.5 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.2 ... 12 m |
| Measurement field length | 790 mm |
| Number of beams | 40 Piece(s) |
| Beam spacing | 20 mm |

| Measurement data | |
|---|---|
| Minimum object diameter | 30 mm |

| Electrical data | |
|---|---|
| Protective circuit | Polarity reversal protection<br>Short circuit protected<br>Transient protection |

| Performance data | |
|---|---|
| Supply voltage $U_B$ | 18 ... 30 V , DC |
| Residual ripple | 0 ... 15 % , From $U_B$ |
| Open-circuit current | 0 ... 215 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. $U_B$ / 0 V |
| Voltage type, inputs | DC |
| Switching voltage, inputs | high: ≥6V<br>low: ≤4V |

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

| Timing | |
|---|---|
| Readiness delay | 1,500 ms |
| Cycle time | 1 ms |
| Response time per beam | 10 μs |

| Interface | |
|---|---|

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| Type | PROFINET |
|---|---|
| **Profinet** | |
| Function | Process |
| Conformance class | B |
| Protocol | PROFINET RT |
| Switch functionality | Integrated |
| Transmission speed | 10 Mbit/s<br>100 Mbit/s |

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

| **Connection** | |
|---|---|
| Number of connections | 3 Piece(s) |
| Plug outlet | Rear side |
| **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 |
| **Connection 2** | |
| Function | BUS IN |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |
| **Connection 3** | |
| Function | BUS OUT |
| Type of connection | Connector |
| Thread size | M12 |
| Type | 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 823 mm |
| Housing material | Metal , Aluminum |
| Lens cover material | Plastic |

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| Net weight | 1,050 g |
|---|---|
| Housing color | Silver |
| Type of fastening | Groove mounting<br>Via optional mounting device |

| *Operation and display* | |
|---|---|
| Type of display | LED<br>OLED display |
| Number of LEDs | 4 Piece(s) |
| Type of configuration | Software<br>Teach-in |
| Operational controls | Membrane keyboard |

| *Environmental data* | |
|---|---|
| Ambient temperature, operation | -30 ... 60 °C |
| Ambient temperature, storage | -40 ... 70 °C |

| *Certifications* | |
|---|---|
| Degree of protection | IP 65 |
| Protection class | III |
| Certifications | c CSA US |
| Standards applied | IEC 60947-5-2 |

| *Classification* | |
|---|---|
| Customs tariff number | 90314990 |
| eCl@ss 8.0 | 27270910 |
| eCl@ss 9.0 | 27270910 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |

## Dimensioned drawings

All dimensions in millimeters

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Part no.: 50131821 – CML730i-R20-790.R/PN-M12 – Light curtain receiver



A Beam spacing 20 mm
B Measurement field length 790 mm
F M6 thread
G Fastening groove
L Profile length 808 mm
T Transmitter
R Receiver
Y 5 mm



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

# Electrical connection

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

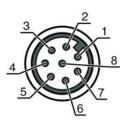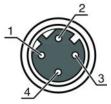| Pin | Pin assignment |
|---|---|
| 1 | V+ |
| 2 | I/O 1 |
| 3 | GND |
| 4 | IO-Link |
| 5 | I/O 2 |
| 6 | RS 485 Tx+ |
| 7 | RS 485 Tx+ |
| 8 | FE/SHIELD |

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

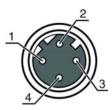| Pin | Pin assignment |
|---|---|
| 1 | TD0+ |
| 2 | RD0+ |
| 3 | TD0- |
| 4 | RD0- |

| Connection 3 | X2B |
|---|---|
| Function | BUS OUT |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Female |

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| Connection 3 | X2B |
|---|---|
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |

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

## 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 |
| 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 |
|---|---|---|---|---|
| | 50118970 | CML730i-T20-790.R-M12 | Light curtain transmitter | Operating range: 0.3 ... 9.5 m<br>Connection: Connector, M12, Rear side, 5 -pin |

## Part number code

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

| CML | **Operating principle:**<br>Measuring light curtain |
|---|---|
| 7XXi | **Series:**<br>720i: 720i series<br>730i: 730i series |
| Y | **Device type:**<br>T: transmitter<br>R: receiver |

| ZZ | **Beam spacing:**<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 | **Equipment:**<br>A: connector outlet, axial<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 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<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50135074 | KS ET-M12-4A-P7-050 | Connection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Connection technology - Interconnection cables

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

## 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<br>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 |

## Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 429046 | BT-2R1 | Mounting bracket set | Contains: 2x BT-R swivel mount, 1 cylinder for mounting on the light curtain<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 360°<br>Material: Metal, Plastic |

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
| | 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Interface: USB<br>Connections: 2 Piece(s)<br>Degree of protection: IP 20 |

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

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