

# **Technical data sheet** Light curtain receiver Part no.: 50123425 CML730i-R20-2870.R/D3-M12



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 eng • 2025-04-04

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### **Technical data**

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#### Basic 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
	Object measurement
Special version	
Special version	Crossed-beam scanning
	Diagonal-beam scanning
	Parallel-beam scanning
Optical data	
Operating range	0.3 9.5 m
Operating range	Guaranteed operating range
Operating range, transparent media	0.3 3.5 m
Operating range limit	0.2 12 m
Operating range limit	Typical operating range
Measurement field length	2,870 mm
Number of beams	144 Piece(s)
Beam spacing	20 mm
Measurement data	
Minimum object diameter	30 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	$0 \hdots 435$ mA, The specified values refer
	to the entire package consisting of trans mitter and receiver.
Inputs/outputs selectable	
Number of inputs/outputs selectable	
Туре	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	
Πραιοαιραι Τ	
Time behavior Cycle time	1.59 ms
Time behavior	1.59 ms 10 μs
Time behavior Cycle time	
Time behavior Cycle time Response time per beam	
Time behavior Cycle time Response time per beam Interface	10 µs
Time behavior Cycle time Response time per beam Interface Type	10 µs
Time behavior Cycle time Response time per beam Interface Type RS 485	10 μs RS 485 Modbus

IO-Link	
Function	Configuration via software
	Service
Connection	
Number of connections	2 Piece(s)
Plug outlet	Rear side
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
Connection 2	
Function	BUS IN
	BUS OUT
Type of connection Thread size	Connector M12
	Female
Type Material	Metal
No. of pins	5 -pin
Encoding	B-coded
Encounty	5 00000
Mechanical data	
Design	Cubic
Design Dimension (W x H x L)	29 mm x 35.4 mm x 2,903 mm
Design Dimension (W x H x L) Housing material	29 mm x 35.4 mm x 2,903 mm Metal
Design Dimension (W x H x L) Housing material Metal housing	29 mm x 35.4 mm x 2,903 mm Metal Aluminum
Design Dimension (W x H x L) Housing material Metal housing Lens cover material	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver
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Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software
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Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation Ambient temperature, storage	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation Ambient temperature, storage Certifications Degree of protection	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C -40 70 °C
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation Ambient temperature, storage Certifications Degree of protection Protection class	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C -40 70 °C IP 65 III
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation Ambient temperature, storage Certifications Degree of protection Protection class Approvals	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C -40 70 °C IP 65 III c UL US
Design Dimension (W x H x L) Housing material Metal housing Lens cover material Net weight Housing color Type of fastening Operation and display Type of display Number of LEDs Type of configuration Operational controls Environmental data Ambient temperature, operation Ambient temperature, storage Certifications Degree of protection Protection class	29 mm x 35.4 mm x 2,903 mm Metal Aluminum Plastic 2,950 g Silver Groove mounting Via optional mounting device LED OLED display 2 Piece(s) Software Teach-in Membrane keyboard -30 60 °C -40 70 °C IP 65 III

## **Technical data**

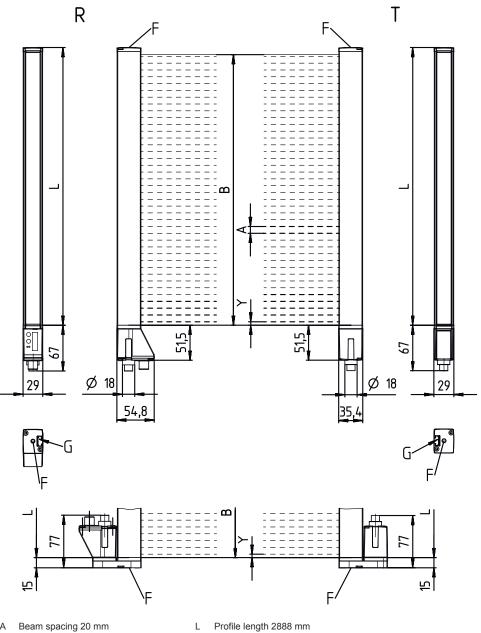
Customs tariff number	90314990
ECLASS 5.1.4	27270910
ECLASS 8.0	27270910
ECLASS 9.0	27270910
ECLASS 10.0	27270910
ECLASS 11.0	27270910
ECLASS 12.0	27270910
ECLASS 13.0	27270910
ECLASS 14.0	27270910
ECLASS 15.0	27270910
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549
ETIM 8.0	EC002549
ETIM 9.0	EC002549
ETIM 10.0	EC002549

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#### **Dimensioned drawings**

All dimensions in millimeters



Beam spacing 20 mm А

Fastening groove

- В Measurement field length 2870 mm
- F M6 thread

G

R Receiver

Т

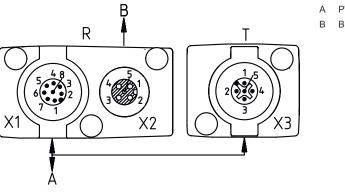
5 mm Υ

Transmitter

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#### **Dimensioned drawings**





A PWR / SW IN / OUTB BUS IN / OUT

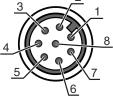
## Electrical connection

#### **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

## **Electrical connection**

Pin	Pin assignment	$-\frac{2}{\sqrt{2}}$
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
50118983	CML730i-T20- 2870.R-M12	Light curtain transmitter	Operating range: 0.3 9.5 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
Y	Device type T: transmitter 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 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



#### Part number code



DDD	Special equipment -PS: Power Setting
EEE	Electrical connection M12: M12 connector
FFF	-EX: Explosion protection
	Note
A	K A list with all available device types can be found on the Leuze website at www.leuze.com.

#### Notes

Observe intended use!
<ul> <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:

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

#### 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

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## 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
RR.	429029	BT-2RG	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° 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.

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Note

No A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.