## Leuze

## **Technical data sheet Light curtain receiver** Part no.: 50120070 CML720i-R05-2560.R/L-M12



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 eng • 2025-04-04

## **Technical data**

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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	
	0.1 4.5 m	
Operating range limit	Typical operating range	
	2,560 mm	
Number of beams	512 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	18 30 V, DC	
Supply voltage U <sub>B</sub> Residual ripple	0 15 %, From U <sub>B</sub>	
Open-circuit current	0 435 mA, The specified values refer	
	to the entire package consisting of trans mitter and receiver.	
Inputs/outputs selectable		
inputo/outputo oolootublo	100	
Output current, max.	100 mA	
	6,000 Ω	
Output current, max.	6,000 Ω	
Output current, max. Input resistance Number of inputs/outputs selectable	6,000 Ω	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V	
Output current, max.Input resistanceNumber of inputs/outputs selectableTypeVoltage type, outputsSwitching voltage, outputsVoltage type, inputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. $U_B / 0 V$ DC high: ≥6V	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. $U_B / 0 V$ DC high: ≥6V	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1	6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. $U_B / 0 V$ DC high: ≥6V	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V 0 1 ms	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Readiness delay	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V 0 1 ms 400 ms	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Readiness delay Cycle time	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V 0 1 ms 400 ms 15.76 ms	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Readiness delay Cycle time Response time per beam	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V 0 1 ms 400 ms	
Output current, max. Input resistance Number of inputs/outputs selectable Type Voltage type, outputs Switching voltage, outputs Voltage type, inputs Switching voltage, inputs Input/output 1 Activation/disable delay Time behavior Readiness delay Cycle time	6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq$ 6V Iow: $\leq$ 4 V 0 1 ms 400 ms 15.76 ms	

	IO-Link	001/0		
	COM mode	COM2		
	Min. cycle time	COM2 = 2.3 ms		
	Specification	V1.0.1		
		V1.1		
S	ervice interface			
Туре		IO-Link		
	IO-Link			
	Function	Configuration via software		
		Service		
_	onnection			
	umber of connections	2 Piece(s)		
PI	ug outlet	Rear side		
	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		
	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		
м	echanical data			
		Cubic		
	esign imension (W x H x L)	29 mm x 35.4 mm x 2,583 mm		
	ousing material	Metal		
	etal housing	Aluminum		
	ens cover material	Plastic		
Ne	et weight	2,650 g		
н	ousing color	Silver		
Ту	/pe of fastening	Groove mounting		
		Via optional mounting device		
ο	peration and display			
TV	/pe of display	LED		
• • •	pe of display	OLED display		
N	umber of LEDs	2 Piece(s)		
	pe of configuration	Software		
,		Teach-in		
0	perational controls	Membrane keyboard		
	nvironmental data			
_				
	mbient temperature, operation	-30 60 °C		
A	mbient 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

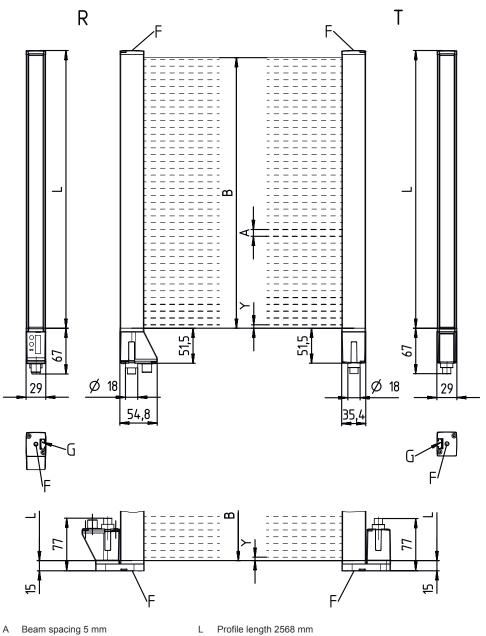
#### Classification

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 А
- В Measurement field length 2560 mm
- F M6 thread G
  - Fastening groove
- R Receiver

Т

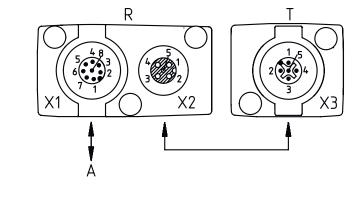
2.5 mm Υ

Transmitter

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### **Dimensioned drawings**





A PWR / SW IN / OUT

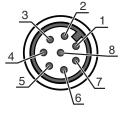
## **Electrical connection**

**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

1	V+		
2	IO1		
3	GND		
4	IO-Link		
5	102		
6	IO3		
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**

Display

LED

olay	Leuze
	Meaning
i .	Operational readiness
	Tooph / orror

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
50119480	CML720i-T05- 2560.R-M12	Light curtain transmitter	Operating range: 0.1 3.5 m Connection: Connector, M12, Rear side, 5 -pin

#### Part number code

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

Operating principle Measuring light curtain
Series           720i: 720i series           730i: 730i series
Device type T: transmitter R: receiver
Beam spacing           05: 5 mm           10: 10 mm           20: 20 mm           40: 40 mm
Measurement field length [mm], dependent on beam spacing
Equipment A: Axial connector outlet R: Rear connector outlet
Interface L: IO-Link /CN: CANopen /PB: PROFIBUS /PN: PROFINET /CV: Analog current and voltage output /D3: RS 485 Modbus
Special equipment -PS: Power Setting
Electrical connection M12: M12 connector
-EX: Explosion protection
th all available device types can be found on the Leuze website at www.leuze.com.

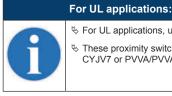
#### Notes

#### Observe intended use!

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

b The product may only be put into operation by competent persons.

 $\ensuremath{^{\ensuremath{\oplus}}}$  Only use the product in accordance with its intended use.



& 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. LEATING	50144900	MD 798i-11-82/L5- 2222	IO-Link master	Type: IO-Link master Current consumption, max.: 11,000 mA Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET Connections: 12 Piece(s) Sensor connections: 8 Piece(s) Connections for voltage supply: 2 Piece(s) Interface connections: 2 Piece(s) 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 Connector, LED: No Connection 2: Open end
				Shielded: Yes Cable length: 5.000 mm Sheathing material: PUR

#### 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 Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

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**Accessories** 

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## 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
ęę.	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

## Configuration devices

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

#### Services

	Part no.	Designation	Article	Description
y; U	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.

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