



the sensor people





Figure can vary

Part no.: 50123596 CML720i-R05-1760.R/D3-M12 Light curtain receiver





# **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		
THE STATE	- <b></b>		
Special design			
Special design	Crossed-beam scanning		
	Diagonal-beam scanning Parallel-beam scanning		
Optical data			
Operating range	Guaranteed operating range		
Operating range	0.1 3.5 m		
Operating range limit	Typical operating range		
Operating range limit	0.1 4.5 m		
Measurement field length	1,760 mm		
Number of beams	352 Piece(s)		
Beam spacing	5 mm		
Measurement data			
Minimum object diameter	10 mm		
willimum object diameter	10 111111		
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>350 mA , The specified values refer to the entire package consisting of transmitter 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)		
Туре	Inputs/outputs selectable		
Voltage type, outputs	DC		
Switching voltage, outputs	Typ. U <sub>B</sub> / 0 V		
Switching voltage, inputs	high: ≥6V low: ≤4V		
Input/output 1			
Input/output 1 Activation/disable delay	1 ms		
Activation/disable delay	1 ms		
	1 ms		



Type	Interfere		
RS 485	Interface	DC 405	
Function		RS 485	
Service Interface   Interfac		Davis	
Type	Function	Process	
Type	Service interface		
O-Link		IO-l ink	
Connection		.0	
Service		Configuration via software	
Number of connections         2 Piece(s)           Plug outlet         Rear side           Connection 1         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           Function         BUS IN BUS NOT           Type of connection         Connector           Type of connection         Connector <tr< td=""><td></td><td>Service</td></tr<>		Service	
Number of connections         2 Piece(s)           Plug outlet         Rear side           Connection 1         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           Function         BUS IN BUS IN BUS OUT           Type of connection         Connector           Type of confection         Connector			
Plug outlet			
Connection 1			
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Connection to transmitter Signal OUT Voltage supply  Type of connection  Connector  Thread size  M12  Type Male Material Metal No. of pins Bus N Encoding A-coded  Connection 2  Function Bus IN Bus OUT Type of connection  Connector  Thread size M12  Type of connection  Type of connection  Connector  Type of pins Bus N Bus N Bus N Bus OUT Type of connection  Connector  Type of connection  Connector  Thread size M12  Type Female Material Metal No. of pins S-pin Encoding B-coded  Mechanical data  Design Cubic Dimension (W x H x L) 29 mm x 35.4 mm x 1,783 mm Housing material Metal , Aluminum  Metal , Aluminum  Plastic Net weight 1,950 g Housing color Silver Type of fastening Groove mounting Via optional mounting device  Operation and display  Type of fastening Via potional mounting device  Type of configuration Software			
Signal IN   Signal OUT   Voltage supply	Function	Configuration interface Connection to transmitter	
Type of connection Thread size M12 Type Male Material Metal No. of pins Bus IN Bus OUT Type of connection Encoding A-coded Connection 2 Function Bus IN Bus OUT Type of connector Thread size M12 Type of connection Thread size M12 Type of connection Auterial Metal No. of pins Bus IN Bus OUT Type of connection Thread size M12 Type Female Material Metal No. of pins S-pin Encoding B-coded  Mechanical data Design Cubic Dimension (W x H x L) Design Cubic Dimension (W x H x L) Design Auterial Metal Autuminum Lens cover material Plastic Net weight Housing oolor Siliver Type of fastening Groove mounting device  Operation and display Type of display LED OLED display Number of LEDs Type of configuration		Signal IN	
Type of connection		Signal OUT Voltage supply	
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           Type         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 1,783 mm           Housing material         Metal , Aluminum           Lens cover material         Plastic           Net weight         1,950 g           Housing color         Silver           Type of fastening         Groove mounting Via optional mounting device           Operation and display         LED OLED display           Number of LEDs         2 Piece(s)           Type of configuration         Software	Type of connection		
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           Type         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 1,783 mm           Housing material         Metal , Aluminum           Lens cover material         Plastic           Net weight         1,950 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 Plece(s)           Type of configuration         Software		M12	
Material         Metal           No. of pins         8 -pin           Encoding         A-coded           Connection 2           Function         BUS IN BUS OUT           Type of connection         Connector           Thread size         M12           Type         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 1,783 mm           Housing material         Metal , Aluminum           Lens cover material         Plastic           Net weight         1,950 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			
No. of pins			
Encoding A-coded  Connection 2 Function BUS IN BUS OUT  Type of connection Connector  Thread size M12  Type 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 1,783 mm  Housing material Metal, Aluminum  Lens cover material Plastic  Net weight 1,950 g  Housing color Siliver  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	-		
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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 1,783 mm  Housing material Metal , Aluminum  Lens cover material Plastic Net weight 1,950 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	Thread size	M12	
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Encoding  Mechanical data  Design  Cubic  Dimension (W x H x L)  Design  Housing material  Lens cover material  Net weight  Housing color  Type of fastening  Cyperation and display  Type of display  Number of LEDs  Type of configuration  B-coded  Cubic  Cubic  Cubic  Dem x 35.4 mm x 1,783 mm  Metal , Aluminum  Plastic  1,950 g  Groove mounting Via optional mounting device		Metal	
Mechanical data  Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 1,783 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 1,950 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	No. of pins	5 -pin	
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Housing material  Lens cover material  Plastic  Net weight  1,950 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			
Lens cover material Plastic  Net weight 1,950 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			
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Housing color  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			
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			
Via optional mounting device  Operation and display  Type of display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software			
Type of display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software	Type of fastening	Via optional mounting device	
Type of display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software	Out and fine and fine		
OLED display       Number of LEDs     2 Piece(s)       Type of configuration     Software		LED	
Number of LEDs 2 Piece(s)  Type of configuration Software	туре от аізріау		
Type of configuration Software	Number of LEDs		
Teach-in			
	-	Teach-in	

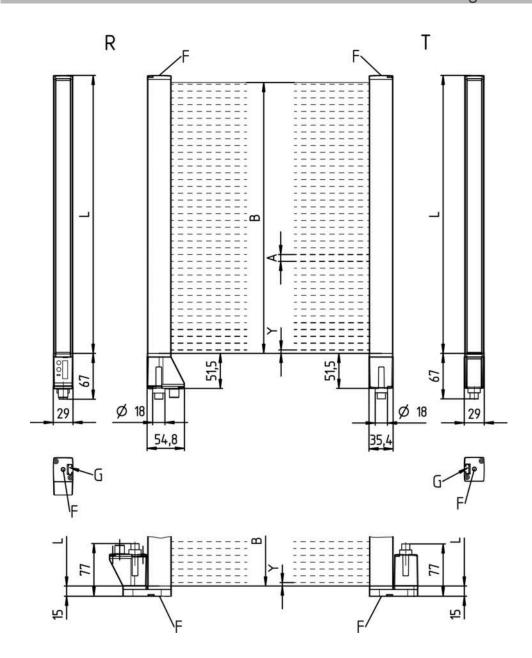


Environmental data			
Ambient temperature, operation	-30 60 °C	-30 60 °C	
Ambient temperature, storage	-40 70 °C		
Certifications			
Degree of protection	IP 65		
Protection class	III		
Certifications	c CSA US		
Standards applied	IEC 60947-5-2		
Classification			
Customs tariff number	90314990		
eCl@ss 8.0	27270910		
eCl@ss 9.0	27270910		
ETIM 5.0	EC002549		
ETIM 6.0	EC002549		

### **Dimensioned drawings**

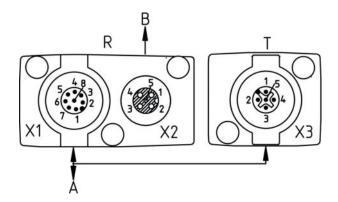
All dimensions in millimeters





- A Beam spacing 5 mm B Measurement field length 1760 mm
- F M6 thread
- G Fastening groove
- L Profile length 1768 mm
- T Transmitter
- R Receiver
- Y 2.5 mm



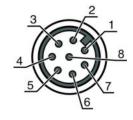


A PWR / SW IN/OUT B BUS IN / OUT

### **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	

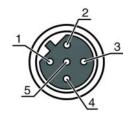
Pin	Pin assignment
1	V+
2	I/O 1
3	GND
4	IO-Link
5	I/O 2
6	RS 485 Tx+
7	RS 485 Tx+
8	FE/SHIELD



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



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



### **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

### Suitable transmitters

Part no.	Designation	Article	Description
50119470	CML720i- T05-1760.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

CML	Operating principle: Measuring light curtain	
7XXi	Series: 720i: 720i series 730i: 730i series	
Y	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: connector outlet, axial 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	
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 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 Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

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### 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
	50123265	K-YPB M12A-5m- M12A-S-PUR	Interconnection cable	Suitable for interface: PROFIBUS DP Connection 1: Connector, M12, Axial, Male, B-coded, 5 -pin Connection 2: Connector, M12, Axial, Female, B-coded, 5 -pin Connection 3: Connector, M12, Axial, Male, B-coded, 5 -pin Shielded: Yes Cable length fork 1: 5,000 mm Cable length fork 2: 250 mm 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 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
EE.	429046	BT-2R1	Mounting bracket set	Contains: 2x BT-R swivel mount, 1 cylinder for mounting on the light curtain 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. 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. Conditions: Price not including travel costs and, if applicable, accommodation expenses. 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.