



the sensor people





Figure can vary

Part no.: 50131963 CML720i-R20-1910.R/PN-M12 Light curtain receiver





# **Contents**

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### **Technical data**

Basic data			
Series Series	720		
Operating principle	Throughbeam principle		
Device type	Receiver		
Contains	Accessories for the use of the BT-2R1		
Application	Object measurement		
Application	Object meadurement		
Optical data			
Operating range	Guaranteed operating range		
Operating range	0.3 7 m		
Operating range limit	Typical operating range		
Operating range limit	0.2 9 m		
Measurement field length	1,910 mm		
Number of beams	96 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	0 350 mA , The specified values refer to the entire package or		
	sisting 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)		
Туре	Inputs/outputs selectable		
Voltage type, outputs	DC		
Switching voltage, outputs	Typ. U <sub>B</sub> / 0 V		
Voltage type, inputs	DC		
Switching voltage, inputs	high: ≥6V low: ≤4V		
Input/output 1			
Activation/disable delay	1 ms		
•			
Timing			
Readiness delay	1,500 ms		
Cycle time	3.28 ms		
Response time per beam	30 µs		
Interface			
Type PROFINET			



Profinet				
Function	Process			
Conformance class	В			
Protocol	PROFINET RT			
Switch functionality	Integrated			
Transmission speed				
Service interface				
Туре	IO-Link			
IO-Link				
Function	Configuration via software Service			
Connection				
Number of connections	3 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			
Type of connection	Connector			
Thread size	M12			
Туре	Female			
Material	Metal			
No. of pins	4 -pin			
Encoding	D-coded			
Connection 3				
Function	BUS OUT			
Type of connection	Connector			
Thread size	M12			
Туре	Female			
Material	Metal			
No. of pins	4 -pin			
Encoding	D-coded D-coded			
Mechanical data				
Design	Cubic			
Dimension (W x H x L)	29 mm x 35.4 mm x 1,943 mm			
Housing material	Metal , Aluminum			
Lens cover material	Plastic			
Net weight	et weight 2,100 g			

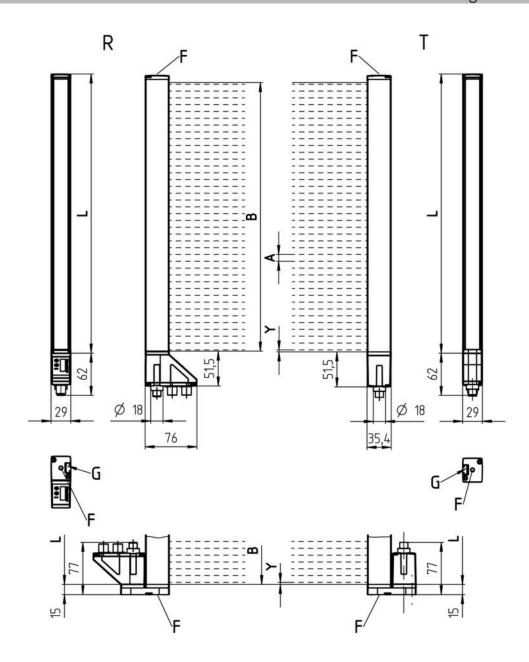


Housing color	Silver			
Type of fastening	Groove mounting Via optional mounting device	Groove mounting Via optional mounting device		
Operation and display				
Type of display	LED OLED display			
Number of LEDs	4 Piece(s)			
Type of configuration	Software Teach-in			
Operational controls	Membrane keyboard			
Environmental data				
	-30 60 °C			
Ambient temperature, operation				
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			

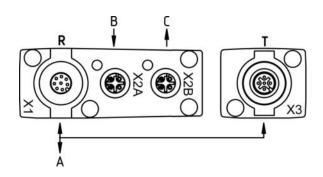
### **Dimensioned drawings**

All dimensions in millimeters





- A Beam spacing 20 mm B Measurement field length 1910 mm
- F M6 thread
- G Fastening groove
- L Profile length 1928 mm
- T Transmitter
- R Receiver
- Y 5 mm



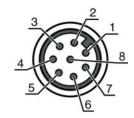


A PWR / SW IN/OUT B BUS IN C BUS OUT

### **Electrical connection**

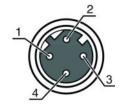
Connection 1	X1	
Function	Configuration interface Connection to transmitter Signal IN Signal OUT Voltage supply	
Type of connection	Connector	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	8 -pin	
Encoding	A-coded	

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

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

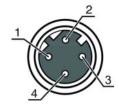


Connection 3	X2B	
Function	BUS OUT	
Type of connection	Connector	
Thread size	M12	
Туре	Female	



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
50119516	CML720i- T20-1910.R-M12	Light curtain transmitter	Operating range: 0.3 6 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

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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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Pa	art no. Des	esignation	Article	Description
5013	135074 KS E P7-09			Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm 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 Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm 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 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

## 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

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

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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.  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.