



the sensor people





Figure can vary

Part no.: 50123393 CML730i-R10-640.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	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 design	
Special design	Crossed-beam scanning Diagonal-beam scanning Parallel-beam scanning
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	640 mm
Number of beams	64 Piece(s)
Beam spacing	10 mm
Measurement data	
Minimum object diameter	20 mm
Electrical data	
Protective circuit	Polarity reversal protection
Totological Control of the Control o	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>215 mA, The specified values refer to the entire package consisting of transmitter and receiver.</li> </ol>
Inputs/outputs selectable	
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 Iow: ≤4V
Input/output 1	
Timing	
Cycle time	1 ms
	10 μs
Response time per beam	<u> </u>
Response time per beam  Interface	



Process   Process	B0 405			
Service Interface   Type   O-Link     Function	RS 485	December		
	Function	Process		
O-Link				
Function  Connection  Number of connections  2 Piece(s)  Plug outlet  Rear side  Connection 1  Function  Configuration interface Connection to transmitter Signal IN S		IO-Link		
Service				
Number of connections         2 Piece(s)           Plug outet         Rear side           Connection 1         Configuration interface	Function			
Number of connections         2 Piece(s)           Plug outet         Rear side           Connection 1         Configuration interface				
Plug outlet Rear side  Connection 1  Function Configuration interface Connection to transmitter Signal NUT Village supply Vill	Connection			
Connection 1	Number of connections	2 Piece(s)		
Function  Configuration interface Connector to transmitter Signal N Signal OUT Type of connection  Connector  Thread size  M12  Type Male Material Metal No. of pins 8 - pin Encoding A-coded  Connector  Type of connection  BUS IN BUS IN BUS OUT  Type of connection  Connector  Thread size M12  Function BUS OUT  Type of connection Connector  Connector  Thread size M12  Type Female Material No. of pins S - pin Encoding B-coded  Metal No. of pins S - pin Encoding B-coded  Metal No. of pins S - pin Encoding B-coded  Metal No. of pins S - pin Encoding B-coded  Metal No. of pins S - pin Encoding B-coded  Mechanical data  Design Cubic Dimension (W x H x L) S - y m x 35.4 m x 663 m m Housing material Metal, Aluminum Lens cover material Plastic Net weight S - y - y - y - y - y - y - y - y - y -	Plug outlet	Rear side		
Connection to transmitter Signal OUT Voltage supply  Type of connection  Connector  Thread size  M12  Type  Male  Material  No. of pins  Encoding  A-coded  Connection  Function  BUS IN BUS OUT  Type of connection  Connector  Thread size  M12  Type of connection  Connector  Thread size  M12  Type of connection  Connector  Thread size  M12  Type  Female  Material  Metal  No. of pins  S-pin  Encoding  A-coded  Connector  Thread size  M12  Type  Female  Material  Metal  No. of pins  S-pin  Encoding  B-coded  Metal  Metal  No. of pins  S-pin  Encoding  B-coded  Metal  Metal  No. of pins  S-pin  Encoding  B-coded  Metal  No. of pins  S-pin  Encoding  No. of pins  S-pins  Encoding  No. of pins  S-pins  Encoding  No. of pins  S-pins  Encod	Connection 1			
Thread size	Function	Connection to transmitter Signal IN Signal OUT		
Male	Type of connection	Connector		
Material         Metal           No. of pins         8 -pin           Encoding         A-coded           Connection 2         Function           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 663 mm           Housing material         Metal , Aluminum           Lens cover material         Plastic           Net weight         900 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 Feach-in	Thread size	M12		
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 663 mm  Housing material Metal, Aluminum  Lens cover material Plastic  Net weight 900 g  Housing color Silver  Type of fastening Groove mounting via optional mounting device  Operation and display  Type of display  Number of LEDS 2 Piece(s)  Type of configuration  Software Facch-in	Туре	Male		
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 663 mm  Housing material Metal, Aluminum  Lens cover material Plastic  Net weight 900 g  Housing color Siliver  Type of fastening Grove mounting Via optional mounting device  Operation and display  Type of display  Number of LEDs 2 Piece(s)  Type of configuration  BUS IN  BUS ON  12  Female  Metal  Metal  Metal  Auminum  Plastic  Grove mounting Via optional mounting device	Material	Metal		
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 663 mm Housing material Metal, Aluminum Lens cover material Plastic Net weight 900 g Housing color Silver Type of fastening Groove mounting Via optional mounting device  Operation and display Type of display Number of LEDs 2 Piece(s) Type of configuration  BUS IN	No. of pins	8 -pin		
Function BUS IN BUS OUT  Type of connection Connector Thread size M12  Type Female Material No. of pins 5 - pin Encoding B-coded  Mechanical data Design Cubic Dimension (W x H x L) 10 29 mm x 35.4 mm x 663 mm Housing material Metal, Aluminum Lens cover material Plastic Net weight 900 g Housing color Silver Type of fastening  Operation and display Type of display  Number of LEDs Type of configuration Software Teach-in	Encoding	A-coded		
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 663 mm Housing material Metal, Aluminum Lens cover material Plastic Net weight 900 g Housing color Silver Type of fastening Groove mounting Via optional mounting device  Operation and display Type of display  Number of LEDs 2 Piece(s) Type of configuration  Software Teach-in	Connection 2			
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 663 mm Housing material Metal , Aluminum Lens cover material Plastic Net weight 900 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 Teach-in	Function			
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 663 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 900 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 Teach-in	Type of connection	Connector		
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 663 mm  Housing material Metal , Aluminum  Lens cover material Plastic Net weight 900 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 Teach-in	Thread size	M12		
No. of pins  Encoding  B-coded  Mechanical data  Design  Cubic  Dimension (W x H x L)  Dimension (W x H x L)  Housing material  Lens cover material  Net weight  Plastic  Net weight  900 g  Housing color  Type of fastening  Croove mounting Via optional mounting device  Operation and display  Type of display  LED  OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software  Teach-in	Туре	Female		
Encoding  Mechanical data  Design  Cubic  Dimension (W x H x L)  129 mm x 35.4 mm x 663 mm  Housing material  Metal , Aluminum  Lens cover material  Net weight  900 g  Housing color  Type of fastening  Groove mounting Via optional mounting device  Operation and display  Type of display  Number of LEDs  2 Piece(s)  Type of configuration  B-coded  B-coded  B-coded  B-coded  B-coded  B-coded  LED  Oulic  Display  LED  OLED display  Software  Teach-in	Material	Metal		
Mechanical data  Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 663 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 900 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 Teach-in		5 -pin		
Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 663 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 900 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 Teach-in	Encoding	B-coded		
Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 663 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 900 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 Teach-in	Machanical data			
Dimension (W x H x L)  29 mm x 35.4 mm x 663 mm  Housing material  Metal , Aluminum  Lens cover material  Plastic  Net weight  900 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 Teach-in		Cubic		
Housing material Lens cover material Plastic  Net weight 900 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 Teach-in				
Lens cover material Plastic  Net weight 900 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 Teach-in				
Net weight 900 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 Teach-in				
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  Silver  Groove mounting device  LED OLED display  Software Teach-in				
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 Teach-in				
Operation and display       Type of display     LED OLED display       Number of LEDs     2 Piece(s)       Type of configuration     Software Teach-in		Groove mounting		
Type of display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software Teach-in		via optional mounting device		
OLED display  Number of LEDs 2 Piece(s)  Type of configuration Software Teach-in	Operation and display			
Type of configuration Software Teach-in	Type of display			
Teach-in Teach-in	Number of LEDs	2 Piece(s)		
Operational controls Membrane keyboard	Type of configuration			
	Operational controls	Membrane keyboard		



Ambient temperature, operation	-30 60 °C
Ambient temperature, storage	-40 70 °C

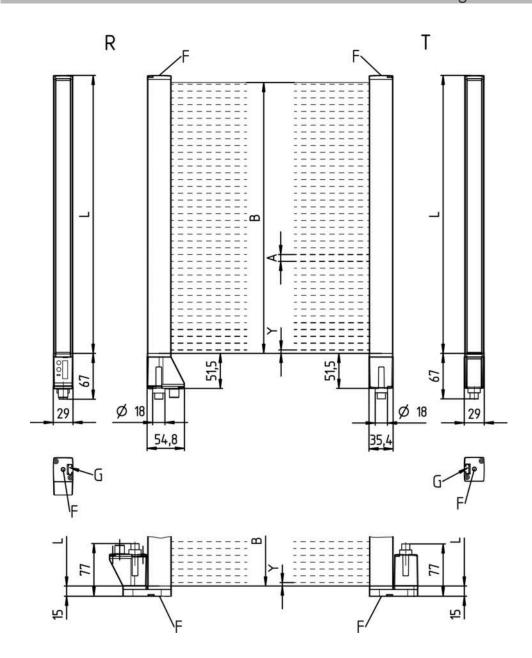
Certifications		
Degree of protection	IP 65	
Protection class	III	
Certifications	c CSA US	
Standards applied	IEC 60947-5-2	

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**

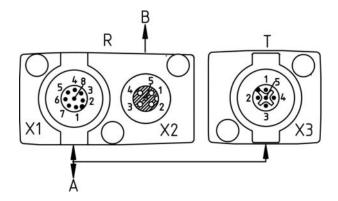
All dimensions in millimeters





- A Beam spacing 10 mm B Measurement field length 640 mm
- F M6 thread
- G Fastening groove
- L Profile length 648 mm
- T Transmitter
- R Receiver
- Y 5 mm



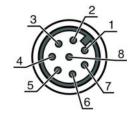


A PWR / SW IN/OUT B BUS IN / OUT

#### **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 A-coded

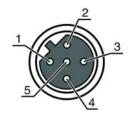
Pin	Pin assignment
1	V+
2	I/O 1
3	GND
4	IO-Link
5	I/O 2
6	RS 485 Tx+
7	RS 485 Tx+
8	FE/SHIELD



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
50118952	CML730i- T10-640.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
Υ	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
		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.