



the sensor people





Figure can vary

Part no.: 50123360 CML730i-R05-640.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	0.1 4.5 m	
Operating range, transparent media	0.1 1.75 m	
Operating range limit	Typical operating range	
Operating range limit	0.1 6 m	
Measurement field length	640 mm	
Number of beams	128 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		
Supply voltage U <sub>B</sub>	18 30 V , DC	
Residual ripple	0 15 % , From U <sub>B</sub>	
Open-circuit current	0 215 mA , The specified values refer to the entire package consisting of transmitter and receiver.	
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	
	low: ≤4V	
Input/output 1		
Timing		
Cycle time	1.43 ms	
Response time per beam	10 μs	
Interface		



Function	RS 485					
Service Interface   Interfac		Process				
Color   Color   Color						
Color   Color   Color	Samilaa intarfaaa					
		IQ.I ink				
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		10-ши				
Service		Configuration via pothware				
Number of connections    Plug outlet   Rear side	Function					
Number of connections    Plug outlet   Rear side	Connection					
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  Type Material Metal No. of pins 8-pin  Encoding A-coded  Connection BUS IN BUS OUT  Type of connection  Function BUS IN BUS OUT  Type of connection  Thread size M12  Type Connection Connector  Function BUS IN BUS OUT  Type of connection Connector  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 Color Silver  Type of display  LED  OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Configuration Connector  Connector  Connector  Connector  Attach  Connector  Connector  Connector  Attach  Connector  Co		2 Piece(s)				
Connection 1	Plug outlet					
Function  Configuration interface Connection to transmitter Signal OUT Voltage supply  Type of connection  Thread size  M12  Type Male Material Metal No. of pins BuS IN Function BuS OUT  Type of connection  Connector  Function BuS SOUT  Type of connection Connection  Connection 2  Function BuS OUT  Type of connection Connector  Thread size M12  Type Female Material No. of pins BuS OUT  Type of connection Connector  Thread size M12  Type Female Material No. of pins S-pin Encoding B-coded  Mechanical data  Design Cubic Dimension (W x H x L) Design Active material Netal Netal Net weight Sour  Plastic Net weight Sour  Type of fastening Cubic Dimension (W x H x L) Dimension (W x						
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 663 mm Housing material Metal Aluminum Lens cover material Plastic Net weight 900 g Housing olor Silver Type of fastening Groove mounting via optional mounting device  Operation and display Type of display  LED OLED display  Number of LEDS 2-pine(s) Software Teach-in		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  BUS IN B	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 Silver  Type of fastening  Coperation and display  Type of display  Number of LEDs 2 Piece(s)  Type of configuration  BUS IN B	Material	Metal				
Function  BUS IN BUS OUT  Type of connection  Thread size  M12  Type Female  Material Metal No. of pins Encoding  Mechanical data Design Cubic Dimension (W x H x L) Dimension (W x H x L) Lens cover material Net weight Plastic Net weight Support Silver Type of fastening  Operation and display  Number of LEDs Type of configuration  BUS IN BUS OUT  Connector  M12  Female Meta Meta Meta  Metal Metal Metal Metal Metal Metal Metal Aluminum  Plastic Groove mounting Via optional mounting device  Operation and display  Number of LEDs 2 Piece(s) Type of configuration  Software Teach-in	No. of pins	8 -pin				
Function BUS IN BUS OUT  Type of connection Connector Thread size M12 Type Female Material No. of pins Encoding B-coded  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 Silver Type of fastening  Operation and display Type of display  Number of LEDs Type of configuration Software Teach-in  Software Teach-in	Encoding	A-coded				
Type of connection  Thread size  M12  Type  Female  Material  No. of pins  Encoding  Mechanical data  Design  Cubic  Dimension (W x H x L)  Housing material  Lens cover material  Net weight  Housing color  Type of fastening  Coperation and display  Type of configuration  BUS OUT  Connector  M12  M12  M12  M12  M12  M12  Female  Metal  Metal  Metal  Metal  Cubic  Dimension (W x H x L)  29 mm x 35.4 mm x 663 mm  Housing material  Metal , Aluminum  Plastic  Grover material  Plastic  Grover mounting Via optional mounting device	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  B-coded  Mechanical data  Design  Cubic  Dimension (W x H x L)  10	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	No. of pins	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				
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	Mechanical data					
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	Design	Cubic				
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	Dimension (W x H x L)	29 mm x 35.4 mm x 663 mm				
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 material	Metal , Aluminum				
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 Teach-in	Lens cover material	Plastic				
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				
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	Silver				
Type of display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software Teach-in	Type of fastening					
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	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

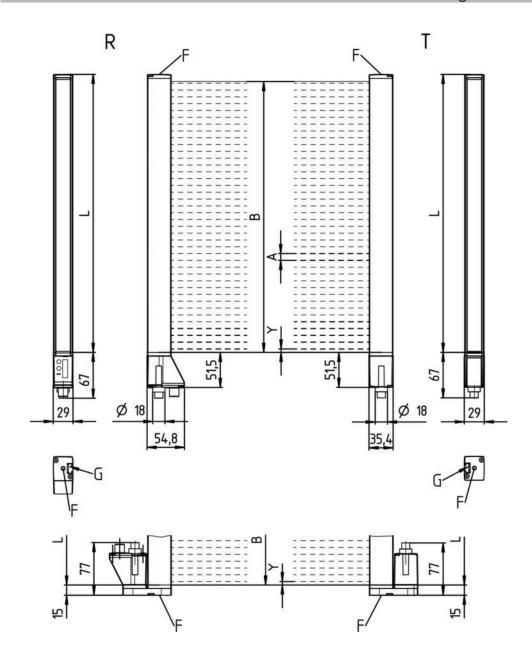
Certifications	
Degree of protection	IP 65
Protection class	III
Certifications	c CSA US
Standards applied	IEC 60947-5-2

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**

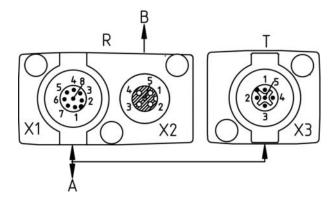
All dimensions in millimeters





- A Beam spacing 5 mm B Measurement field length 640 mm
- F M6 thread
- G Fastening groove
- L Profile length 648 mm
- T Transmitter
- R Receiver
- Y 2.5 mm



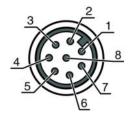


A PWR / SW IN/OUT B BUS IN / OUT

#### **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	

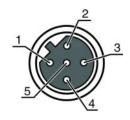
Pin	Pin assignment
1	V+
2	I/O 1
3	GND
4	IO-Link
5	I/O 2
6	RS 485 Tx+
7	RS 485 Tx+
8	FE/SHIELD



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
50118919	CML730i- T05-640.R-M12	Light curtain transmitter	Operating range: 0.1 4 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.