



the sensor people





Figure can vary

Part no.: 50123358 CML730i-R05-480.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	480 mm	
Number of beams	96 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	0 165 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	1.11 ms	
•		
Response time per beam	10 μs	
Interface		
Туре	RS 485	



Function	RS 485			
Service Interface   Interfac		Process		
Connection				
Connection	Sarvica interface			
GoLink		IO-Link		
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 Signa		IO-LIIK		
Service		Configuration via coftware		
Number of connections  2 Piece(s) Plug outlet Rear side  Connection 1  Function Configuration interface Connection to transmitter Signal IN Signal OUT Voltage supply  Type of connection Thread size M12 Type Male Material Metal No. of pins Bus OUT Type of connection Bus Sin Thread size Function Bus Sin Bus No Type of connection Connection 2  Function Bus Sin Bus No	Function			
Number of connections  2 Piece(s) Plug outlet Rear side  Connection 1  Function Configuration interface Connection to transmitter Signal IN Signal OUT Voltage supply  Type of connection Thread size M12 Type Male Material Metal No. of pins Bus OUT Type of connection Bus Sin Thread size Function Bus Sin Bus No Type of connection Connection 2  Function Bus Sin Bus No	Connection			
Plug outlet Rear side  Connection 1  Function Configuration interface Connection to transmitter Signal DVT Voltage supply  Type of connection Connector  Thread size M12  Type Male Material Metal No. of pins 8-pin  Encoding A-coded  Connection 2  Function BUS IN BUS IN BUS OUT  Type of connection  Type of connection  Function BUS IN BUS OUT  Type of connection  Thread size M12  Type Female Material Metal Metal No. of pins BUS IN BUS		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 BuS in BuS OUT  Type of connection  Connection  Connection  A-coded  Connection  Connection  BuS No. of pins BuS OUT  Type of connection  Connection  Connection  Tread size  M12  Type Female Metal No. of pins Female No. of pins Female No. of pins Female No. of pins Female Female Noterial No. of pins Female Female Noterial No. of pins Female Female Noterial No. of pins Female Female No. of pins				
Thread size		Connection to transmitter Signal IN Signal OUT		
Type Male  Material Metal  No. of pins 8 -pin  Encoding A-coded  Connection 2  Function BUS IN BUS OUT  Type of connector  Thread size M12  Type Female  Material Metal  No. of pins 5 -pin  Encoding B-coded  Metal  Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 503 mm  Housing material Metal, Aluminum  Lens cover material Plastic  Net weight 750 g  Housing color Silver  Type of fastening Groove mounting Via optional mounting device  Operation and display  Type of display  LED OLED display  LED OLED display  LED OLED display  LED OLED display  Type of configuration  Software Feach-in	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 503 mm           Housing material         Metal, Aluminum           Lens cover material         Plastic           Net weight         750 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 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 503 mm Housing material Metal, Aluminum Lens cover material Plastic Net weight 750 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	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)  Housing material  Metal, Aluminum  Housing material  Plastic  Net weight  Type of fastening  Groove mounting via optional mounting device  Operation and display  Type of display  Number of LEDs  Type of configuration  BUS IN BUS OUT  Connector  M12  Female  Metal  Metal  Metal  Metal  Metal  Aluminum  Plastic  Groove mounting Via optional mounting device	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) 29 mm x 35.4 mm x 503 mm Housing material Metal , Aluminum Lens cover material Plastic Net weight 750 g Housing color Silver Type of fastening  Operation and display Type of display Number of LEDs Type of configuration Software Tacch-in  Software Tacch-in				
Type of connection Thread size M12 Type Female Material Motal No. of pins Encoding B-coded  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 M13 M14 M15 M15 M16 M16 M17 M17 M17 M18 M18 M18 M18 M18 M18 M18 M19	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 503 mm  Housing material Metal , Aluminum Lens cover material Plastic Net weight 750 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 503 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 750 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			
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 503 mm Housing material Metal , Aluminum Lens cover material Plastic Net weight 750 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  750 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)  100	Material	Metal		
Mechanical data  Design Cubic  Dimension (W x H x L) 29 mm x 35.4 mm x 503 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 750 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 503 mm  Housing material Metal , Aluminum  Lens cover material Plastic  Net weight 750 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 503 mm  Housing material  Metal , Aluminum  Lens cover material  Plastic  Net weight  750 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 750 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 750 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 503 mm		
Net weight 750 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			
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				
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				
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 display  LED OLED display  Number of LEDs  2 Piece(s)  Type of configuration  Software Teach-in	Type of fastening	Groove mounting 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	Number of LEDs	2 Piece(s)		
Operational controls Membrane keyboard				
	Operational controls	Membrane keyboard		



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

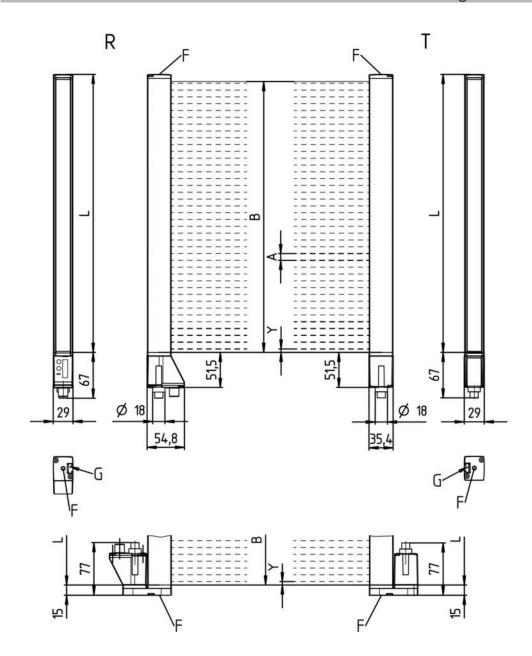
Certifications		
Degree of protection	IP 65	
Protection class	III	
Certifications	c CSA US	
Standards applied	IEC 60947-5-2	

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**

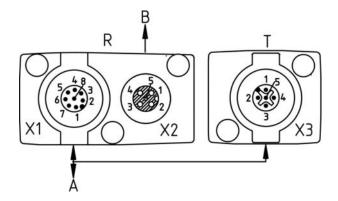
All dimensions in millimeters





- A Beam spacing 5 mm B Measurement field length 480 mm
- F M6 thread
- G Fastening groove
- L Profile length 488 mm
- T Transmitter
- R Receiver
- Y 2.5 mm



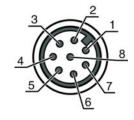


A PWR / SW IN/OUT B BUS IN / OUT

### **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	

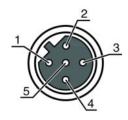
Pin	Pin assignment
1	V+
2	I/O 1
3	GND
4	IO-Link
5	I/O 2
6	RS 485 Tx+
7	RS 485 Tx+
8	FE/SHIELD



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
50118917	CML730i- T05-480.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
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



## 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.