## SMART SENSOR BUSINESS

## Leuze electronic

the sensor people



Part no.: 50120074 CML720i-R05-2880.R/L-M12 Light curtain receiver



Figure can vary

# Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- · Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories

### Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

#### **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
γρηταιιση	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 3.5 m
Operating range limit	Typical operating range
Operating range limit	0.1 4.5 m
Measurement field length	2,880 mm
Number of beams	576 Piece(s)
Beam spacing	5 mm
Measurement data	
Minimum object diameter	10 mm
<i>Electrical data</i> Protective circuit	Polarity reversal protection Short circuit protected Transient protection
	Short circuit protected
Protective circuit	Short circuit protected
Protective circuit Performance data	Short circuit protected Transient protection
Protective circuit Performance data Supply voltage UB	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub>
Protective circuit Performance data Supply voltage U <sub>B</sub> Residual ripple	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con-
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con-
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con- sisting of transmitter and receiver.
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.	Short circuit protected Transient protection          18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance	Short circuit protected         Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable         DC
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable         DC
Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs	Short circuit protected Transient protection  18 30 V , DC  0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con- sisting of transmitter and receiver.  100 mA  6,000 Ω  4 Piece(s)  Inputs/outputs selectable  DC  Typ. U <sub>B</sub> / 0 V
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Voltage type, inputs	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con- sisting of transmitter and receiver. 100 mA 6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq 6V$
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Voltage type, inputs         Switching voltage, inputs	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con- sisting of transmitter and receiver. 100 mA 6,000 $\Omega$ 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: $\geq 6V$
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Voltage type, inputs         Switching voltage, inputs         Input/output 1	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable         DC         Typ. UB / 0 V         DC         high: ≥6V low: ≤4V
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Voltage type, inputs         Switching voltage, inputs         Input/output 1	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable         DC         Typ. UB / 0 V         DC         high: ≥6V low: ≤4V
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Switching voltage, inputs         Switching voltage, inputs         Input/output 1         Activation/disable delay	Short circuit protected Transient protection         18 30 V , DC         0 15 % , From UB         0 600 mA , The specified values refer to the entire package consisting of transmitter and receiver.         100 mA         6,000 Ω         4 Piece(s)         Inputs/outputs selectable         DC         Typ. UB / 0 V         DC         high: ≥6V low: ≤4V
Protective circuit          Performance data         Supply voltage UB         Residual ripple         Open-circuit current         Inputs/outputs selectable         Output current, max.         Input resistance         Number of inputs/outputs selectable         Type         Voltage type, outputs         Switching voltage, outputs         Switching voltage, inputs         Switching voltage, inputs         Switching voltage, inputs         Timing	Short circuit protected Transient protection 18 30 V , DC 0 15 % , From U <sub>B</sub> 0 600 mA , The specified values refer to the entire package con- sisting of transmitter and receiver. 100 mA 6,000 Ω 4 Piece(s) Inputs/outputs selectable DC Typ. U <sub>B</sub> / 0 V DC high: ≥6V Iow: ≤4V 0 1 ms

Leuze electronic GmbH + Co. KG, In der Braike 1, 73277 Owen Phone: +49 7021 573-0, Fax: +49 7021 573-199 info@leuze.com • www.leuze.com We reserve the right to make technical changes • eng 2019-12-08 2 / 9

## Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

Interface				
Туре	IO-Link			
IO-Link				
COM mode	COM2			
Specification	V1.0.1			
	V1.0.1 V1.1			
Min. cycle time	COM2 = 2.3 ms			
Service interface				
Туре	IO-Link			
IO-Link				
Function	Configuration via software			
	Service			
Connection				
Number of connections	2 Piece(s)			
Plug outlet	Rear side			
Connection 1				
Function	Configuration interface			
	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	Connection to transmitter			
Type of connection	Connector			
Thread size	M12			
Туре	Female			
Material	Metal			
No. of pins	5 -pin			
Encoding	A-coded			
Mechanical data				
Design	Cubic			
Dimension (W x H x L)	29 mm x 35.4 mm x 2,903 mm			
Housing material	Metal , Aluminum			
Lens cover material	Plastic			
Net weight	2,950 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)			

## Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

Type of configuration	Software			
	Teach-in			
Operational controls	Membrane keyboard			
Environmental data				
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	IEC 60947-5-2		
Classification				
Customs tariff number	90314990			
eCl@ss 8.0	27270910			
eCl@ss 9.0	27270910			
ETIM 5.0	EC002549			

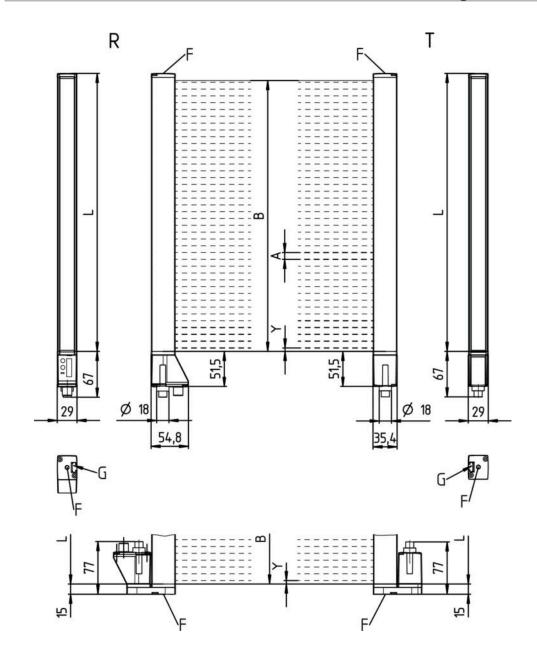
EC002549

#### **Dimensioned drawings**

All dimensions in millimeters

ETIM 6.0

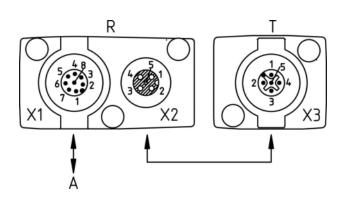
Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver



A Beam spacing 5 mm B Measurement field length 2880 mm

F M6 thread

- G Fastening groove L Profile length 2888 mm
- T Transmitter
- R Receiver
- Y 2.5 mm



Leuze electronic GmbH + Co. KG, In der Braike 1, 73277 Owen Phone: +49 7021 573-0, Fax: +49 7021 573-199

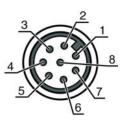
### Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

A PWR / SW IN/OUT

### **Electrical connection**

Connection 1		
Function	Configuration interface 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	101
3	GND
4	IO-Link
5	102
6	103
7	IO4
8	GND



Connection 2	
Function	Connection to transmitter
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment
1	FE/SHIELD
2	V+
3	GND
4	RS 485 Tx+
5	RS 485 Tx-



## Part no.: 50120074 - CML720i-R05-2880.R/L-M12 - Light curtain receiver

#### **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
50119484	CML720i- T05-2880.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.

#### Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

#### 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
50135128	KD S-M12-8A- P1-050		Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

### Connection technology - Interconnection cables

Part no.	Designation	Article	Description
50129781	KDS DN-M12-5A- M12-5A-P3-050	Interconnection cable	Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 5,000 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

## Part no.: 50120074 – CML720i-R05-2880.R/L-M12 – Light curtain receiver

### Mounting technology - Swivel mounts

	Part no.	Designation	Article	Description
ęP.,	429046	BT-2R1	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.		Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20

#### 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.