

# **Technical data sheet** Light curtain receiver

Part no.: 50131983

CML720i-R20-790.R/PN-M12



### Contents

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





### **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

### **Special version**

Special version	Crossed-beam scanning
	Diagonal-beam scanning
	Parallel-beam scanning

### **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	790 mm
Number of beams	40 Piece(s)
Beam spacing	20 mm

#### Measurement data

Minimum object diameter	30 mr
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#### **Electrical data**

Protective circuit	Polarity reversal protection
	Short circuit protected
	Transient protection

### Performance data

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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

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	1.6 ms
Response time per beam	30 µs

#### Interface

OFINE1

Profinet	
Function	Process
Conformance class	В
Protocol	PROFINET RT
Switch functionality	Integrated
Transmission speed	10 Mbit/s
	100 Mhit/s

#### 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

Connection 1	
Function	Configuration interface
	Connection to transmitter
	Signal IN
	Signal OUT
	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
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

### Connection 3

Connection 3		
Function	BUS OUT	
Type of connection	Connector	
Thread size	M12	
Туре	Female	
Material	Metal	
No. of pins	4 -pin	
Encoding	D-coded	

### **Mechanical data**

Design	Cubic
Dimension (W x H x L)	29 mm x 35.4 mm x 823 mm
Housing material	Metal
Metal housing	Aluminum
Lens cover material	Plastic
Net weight	1,050 g
Housing color	Silver
Type of fastening	Groove mounting
	Via optional mounting device

### **Technical data**



### Operation and display

Standards applied

LED
OLED display
4 Piece(s)
Software
Teach-in
Membrane keyboard
-30 60 °C
-40 70 °C
IP 65
III
c CSA US

IEC 60947-5-2

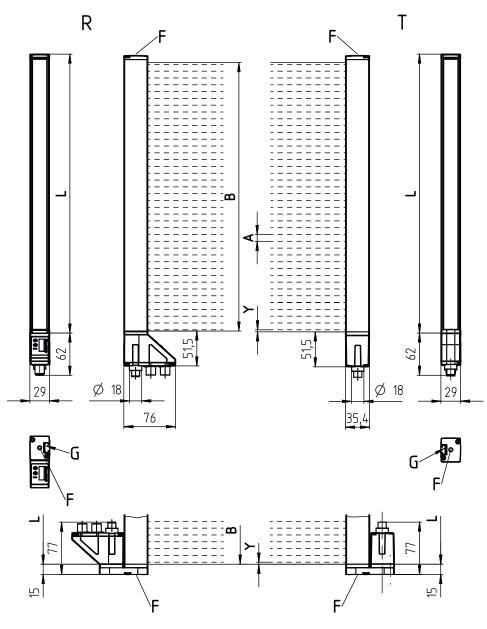
#### Classification

Customs tariff number	90314990
eCl@ss 5.1.4	27270910
eCl@ss 8.0	27270910
eCl@ss 9.0	27270910
eCl@ss 10.0	27270910
eCl@ss 11.0	27270910
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549

# **Dimensioned drawings**



All dimensions in millimeters



- A Beam spacing 20 mm
- B Measurement field length 790 mm
- F M6 thread
- G Fastening groove
- L Profile length 808 mm
- T Transmitter
- R Receiver
- Y 5 mm

# **Dimensioned drawings**



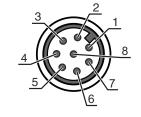


- PWR / SW IN / OUT
- BUS IN
- BUS OUT

# **Electrical connection**

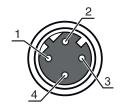
Connection 1	X1
Function	Configuration interface
	Connection to transmitter
	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Туре	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded

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

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



### **Electrical connection**



Connection 3	X2B	
Function	BUS OUT	
Type of connection	Connector	
Thread size	M12	
Туре	Female	
Material	Metal	
No. of pins	4 -pin	
Encoding	D-coded	

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



# **Operation and display**

LED	Display	Meaning
1	Green, continuous light	Operational readiness
	Green, flashing	Teach / error
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
50119509	CML720i-T20-790.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	<b>Series</b> 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

### Part number code



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 website at www.leuze.com.

### **Notes**



### Observe intended use!



- \$ This product is not a safety sensor and is not intended as personnel protection.
- b 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
W	50135074	KS ET-M12-4A-P7- 050	Connection cable	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

### **Accessories**



# 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	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
gg.	429046	BT-2R1	Mounting bracket set	Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic

# Configuration devices

	Part no.	Designation	Article	Description
16	50121098	SET MD12-US2-IL1.1 + Zub.	Diagnostics set	Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20

### **Accessories**



### 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 website in the Download tab of the article detailed page.