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Part no.: 50131999
CML720i-R40-290.R/PN-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	720
Operating principle	Throughbeam principle
Device type	Receiver
Contains	Accessories for the use of the BT-2R1
Application	Object measurement
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	290 mm
Number of beams	7 Piece(s)
Beam spacing	40 mm
Measurement data	
Minimum object diameter	50 mm
Electrical data	
Protective circuit	Polarity reversal protection Short circuit protected Transient protection
Performance data	
Supply voltage U_B	18 ... 30 V , DC
Residual ripple	0 ... 15 % , From U_B
Open-circuit current	0 ... 165 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)
Type	Inputs/outputs selectable
Voltage type, outputs	DC
Switching voltage, outputs	Typ. $U_B / 0$ V
Voltage type, inputs	DC
Switching voltage, inputs	high: ≥ 6 V low: ≤ 4 V
Input/output 1	
Activation/disable delay	1 ms
Timing	
Readiness delay	1,500 ms
Cycle time	1 ms
Response time per beam	30 μ s
Interface	
Type	PROFINET

Profinet

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

Service interface

Type	IO-Link
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IO-Link

Function	Configuration via software Service
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Connection

Number of connections	3 Piece(s)
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	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded

Connection 2

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

Connection 3

Function	BUS OUT
Type of connection	Connector
Thread size	M12
Type	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 343 mm
Housing material	Metal , Aluminum
Lens cover material	Plastic
Net weight	600 g

Part no.: 50131999 – CML720i-R40-290.R/PN-M12 – Light curtain receiver

Housing color	Silver
Type of fastening	Groove mounting Via optional mounting device

Operation and display

Type of display	LED OLED display
Number of LEDs	4 Piece(s)
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

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 40 mm
- B Measurement field length 290 mm
- F M6 thread
- G Fastening groove
- L Profile length 328 mm
- T Transmitter
- R Receiver
- Y 5 mm



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

Electrical connection

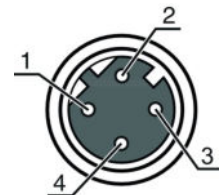
Connection 1	X1
Function	Configuration interface Connection to transmitter Signal IN Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded

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
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

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



Connection 3	X2B
Function	BUS OUT
Type of connection	Connector
Thread size	M12
Type	Female

Part no.: 50131999 – CML720i-R40-290.R/PN-M12 – Light curtain receiver

Connection 3	X2B
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

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




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
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
	50119523	CML720i-T40-290.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.BCCDDDD-EEEEFF

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
B	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

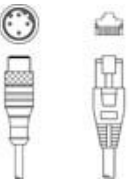
Connection technology - Connection cables

	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

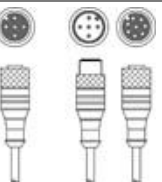
Part no.: 50131999 – CML720i-R40-290.R/PN-M12 – Light curtain receiver

	Part no.	Designation	Article	Description
	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


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	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
	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

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

Services

	Part no.	Designation	Article	Description
	S981001	CS10-S-110	Start-up support	<p>Details: Performed at location of customer's choosing, duration: max. 10 hours.</p> <p>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.</p> <p>Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.</p>
	S981005	CS10-T-110	Product training	<p>Details: Location and content to be agreed upon, duration: max. 10 hours.</p> <p>Conditions: Price not including travel costs and, if applicable, accommodation expenses.</p> <p>Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.</p>

Note

A list with all available accessories can be found on the Leuze electronic website in the Download tab of the article detailed page.