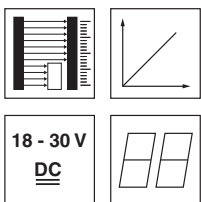


CML 730i

Measuring light curtains

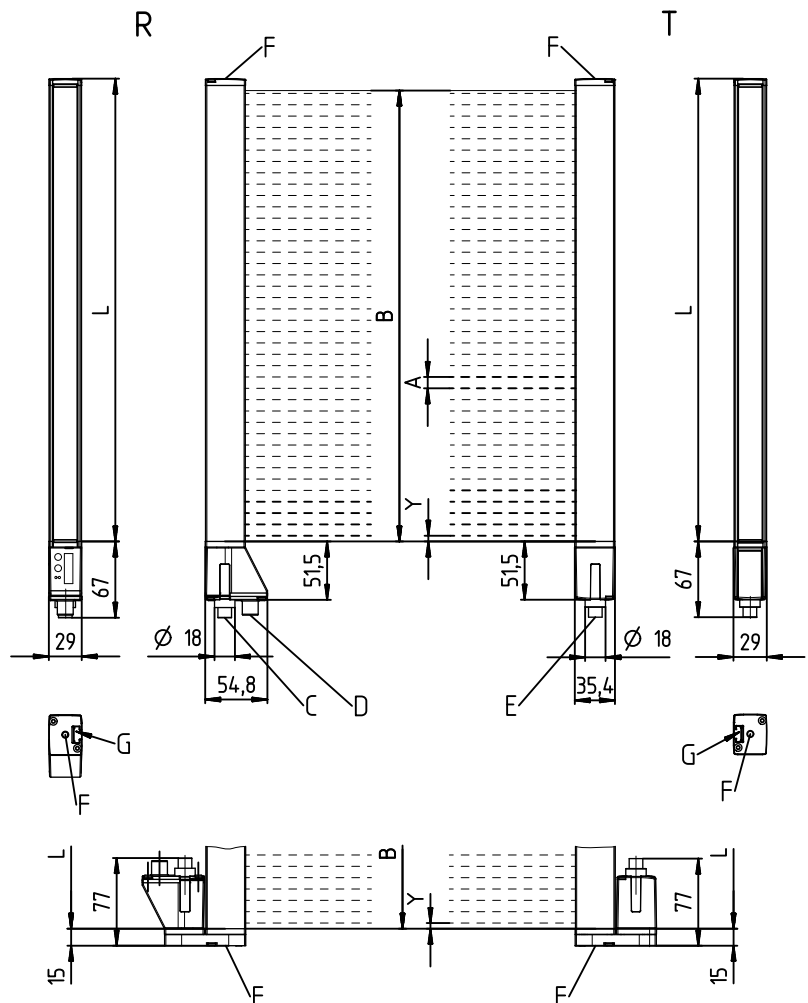
en 04-2014/06 50119587



8m

- Measuring light curtain with shortest cycle time (10µs per beam)
- Beam spacings 5 / 10 / 20 / 40 mm
- Detection of transparent media
- Integrated system controller
- Minimal dead zone for gapless cascading
- Display for fast alignment, configuration and diagnosis
- Configurable switching outputs
- IO-Link, analog, PROFIBUS-DP, RS485 or CANopen interface

Dimensioned drawing



- A** Beam spacing (see tables)
- B** Measurement field length
- F** M6 thread
- G** Fastening groove

- L** Profile length
- R** Receiver
- T** Transmitter
- Y** Beam spacing 5mm:
Y = 2.5mm
Beam spacing 10/20/40mm:
Y = 5mm

IO-Link / analog devices

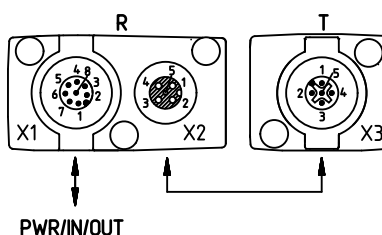
- C** Power In/Out
- D** Connection to the transmitter
- E** Connection to the receiver

PROFIBUS / CANopen / RS485 devices

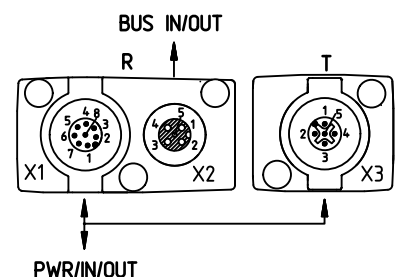
- Power In/Out + connection to transmitter (Y-cable)
- Fieldbus connection (Y-cable)
- Connection to the receiver

Electrical connection

IO-Link / analog devices



PROFIBUS / CANopen / RS485 devices

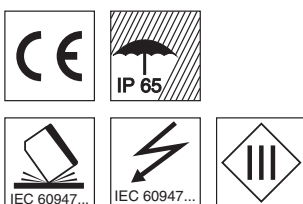


Accessories:

(available separately)

- Mounting brackets/sliding blocks
- Complete mounting bracket sets, incl. 360° rotatable models or variants with vibration dampers
- Ready-made connection and interconnection cables
- PC configuration software

We reserve the right to make changes • DS_CML730_en_50119587.fm



Technical Data

Optical data

| | |
|--|--|
| Typ. operating range limit ¹⁾ | 0.2 ... 10.5m (with beam spacing \geq 10mm) |
| Operating range ²⁾ | 0.1 ... 5m (with 5mm beam spacing) 0.3 ... 8m (with beam spacing \geq 10mm) 0.1 ... 4m (with 5mm beam spacing) 0.3 ... 3.5m (transparent media, with 10mm beam spacing) 150mm ... 2960mm in increments of 80/160mm |
| Meas. field length ³⁾ | 5mm, 10mm, 20mm, 40mm |
| Beam spacing ³⁾ | see technical documentation |
| Resolution | LED (modulated light) |
| Light source | 880nm (infrared light) |
| Wavelength | |

Timing

| | |
|--------------------------------------|--------------|
| Response time per beam ⁴⁾ | 10 μ s |
| Delay before start-up | \leq 450ms |

Electrical data

| | |
|---------------------------------------|--------------------------------------|
| Operating voltage U_B ⁵⁾ | 18 ... 30VDC (incl. residual ripple) |
| Residual ripple | \leq 15% of U_B |
| Open-circuit current | see technical documentation |

Interfaces

| | |
|----------------------------------|---|
| inputs/outputs | 2/4 pins can be configured as input or output |
| Switching output current | max. 100mA |
| Signal voltage active/not active | \geq 8V/ \leq 2V or not connected |
| Activation delay | \leq 1ms |
| Input resistance | approx. 6k Ω |
| Digital interfaces | IO-Link, PROFIBUS-DP, CANopen, RS485 Modbus-RTU |
| Analog interfaces | 0 ... 10(11)V and 0(4) ... 20(24)mA |

Indicators

Receiver:

| | |
|--------------------------------|--|
| Green LED continuous light | ready |
| Green LED flashing | no communication or teaching error |
| Yellow LED in continuous light | light path free, with performance reserve |
| Yellow LED, flashing | light path free, without performance reserve |
| Yellow LED off | light path interrupted, object detected |

Transmitter:

| | |
|----------------------------|---------------------------------------|
| Green LED continuous light | ready |
| Green LED off | no communication with the receiver |
| Display | basic settings and status information |

Mechanical data

| | |
|-----------------|--|
| Housing | continuous-cast aluminum |
| Optics cover | plastic |
| Connection type | M12 connectors |
| Fastening | lateral sliding block or face-mounted corner bracket |

Environmental data/standards

| | |
|--|--------------------------------------|
| Ambient temperature (operation ⁶⁾ /storage) | -30°C ... +60°C/-40°C ... +70°C |
| Protective circuit ⁷⁾ | 1, 2, 3 |
| VDE safety class | III |
| Degree of protection | IP 65 |
| Light source | exempt group (in acc. with EN 62471) |
| Standards applied | IEC 60947-5-2 |

- 1) Typ. operating range limit: min./max. attainable range without performance reserve in parallel-beam operation
- 2) Operating range: recommended range with performance reserve in parallel-beam operation
- 3) Measurement field lengths and beam spacings specified in fixed rasters, see ordering table
- 4) Cycle time = beam number x 0.01ms + 0.2ms. The minimum cycle time is 1ms.
- 5) For UL applications: for use in class 2 circuits according to NEC only
- 6) Dry cold, non-condensing; detection of transparent media down to -20°C.
- 7) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs, must be provided with external protective circuit for inductive loads.
- 8) 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)

Tables

| Profile length L [mm] | | | | |
|---------------------------------|------|------|------|------|
| Measurement field length B [mm] | | | | |
| at beam spacing A [mm] | | | | |
| 5 | 10 | 20 | 40 | |
| 160 | 160 | 150 | — | 168 |
| 240 | — | — | — | 248 |
| 320 | 320 | 310 | 290 | 328 |
| 400 | — | — | — | 408 |
| 480 | 480 | 470 | — | 488 |
| 560 | — | — | — | 568 |
| 640 | 640 | 630 | 610 | 648 |
| 720 | — | — | — | 728 |
| 800 | 800 | 790 | — | 808 |
| 880 | — | — | — | 888 |
| 960 | 960 | 950 | 930 | 968 |
| 1040 | — | — | — | 1048 |
| 1120 | 1120 | 1110 | — | 1128 |
| 1200 | — | — | — | 1208 |
| 1280 | 1280 | 1270 | 1250 | 1288 |
| 1360 | — | — | — | 1368 |
| 1440 | 1440 | 1430 | — | 1448 |
| 1520 | — | — | — | 1528 |
| 1600 | 1600 | 1590 | 1570 | 1608 |
| 1680 | — | — | — | 1688 |
| 1760 | 1760 | 1750 | — | 1768 |
| 1840 | — | — | — | 1848 |
| 1920 | 1920 | 1910 | 1890 | 1928 |
| 2000 | — | — | — | 2008 |
| 2080 | 2080 | 2070 | — | 2088 |
| 2160 | — | — | — | 2168 |
| 2240 | 2240 | 2230 | 2210 | 2248 |
| 2320 | — | — | — | 2328 |
| 2400 | 2400 | 2390 | — | 2408 |
| 2480 | — | — | — | 2488 |
| 2560 | 2560 | 2550 | 2530 | 2568 |
| 2640 | — | — | — | 2648 |
| 2720 | 2720 | 2710 | — | 2728 |
| 2800 | — | — | — | 2808 |
| 2880 | 2880 | 2870 | 2850 | 2888 |
| 2960 | — | — | — | 2968 |

Remarks

Operate in accordance with 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 the intended use.

- The functional earth must be connected to the sliding block connections.

CML 730i

Measuring light curtains

Part number code

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|---|---|---|
| C | M | L | 7 | 3 | 0 | i | - | T | 0 | 5 | - | 1 | 9 | 2 | 0 | . | A | | | - | M | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | M | L | 7 | 3 | 0 | i | - | R | 0 | 5 | - | 1 | 9 | 2 | 0 | . | A | / | C | N | - | M | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Operating principle

CML Measuring light curtain

Series

730i 730i series, 8 m range, cycle time 10µs per beam, display, transparent media

Function

T Transmitter

R Receiver

Beam spacing

05 5 mm

10 10 mm

20 20 mm

40 40 mm

Measurement field length

xxxx Measurement field length [mm], dependent on beam spacing,
for values see "Tables" on page 2

Equipment

A Plug outlet axial

R Plug outlet on the back

Interface

L IO-Link

CN CANopen

PB PROFIBUS-DP

CV Analog current and voltage output

D3 RS485 Modbus-RTU

Electrical connection

M12 M12 connector

Order guide

| | Designation | Part no. |
|---|----------------------------------|----------|
| Transmitter (see type code) | CML730i-T... | |
| Receiver (see type code) | CML730i-R... | |
| Accessories | | |
| Fastenings | | |
| 4 sliding blocks | BT-4NC | 425725 |
| 360° mounting bracket set (consists of 2 x BT 360°) | BT-2R1 | 429046 |
| L-angle mounting bracket set (consists of 2 x BT-L) | BT-2L | 429056 |
| Z-angle mounting bracket set (consists of 2 x BT-Z) | BT-2Z | 429057 |
| Clamp bracket set for mounting in device columns (consists of 2 x BT-P40) | BT-2P40 | 424417 |
| 2 mounting brackets, 70mm long, swiveling with vibration damper, incl. 4 screws and 4 sliding blocks | BT-2SSD | 429058 |
| 2 mounting brackets, 270mm long, swiveling with vibration damper, incl. 4 screws and 4 sliding blocks | BT-2SSD-270 | 429049 |
| Connection cables for IO-Link and analog devices | | |
| Connection cables with M12 connector, 8-pin socket - open cable end | | |
| Connection cable 2m, PUR sheathing | K-D M12A-8P-2m-PUR | 50104591 |
| Connection cable 5m, PUR sheathing | K-D M12A-8P-5m-PUR | 50104590 |
| Connection cable 10m, PUR sheathing | K-D M12A-8P-10m-PUR | 50106882 |
| Interconnection cables between transmitter and receiver | | |
| Interconnection cable 1m, PUR sheathing | KB DN/CAN-1000 SBA | 50114691 |
| Interconnection cable 2m, PUR sheathing | KB DN/CAN-2000 SBA | 50114694 |
| Interconnection cable 5m, PUR sheathing | KB DN/CAN-5000 SBA | 50114698 |
| Interconnection cable 10m, PUR sheathing | KB DN/CAN-10000 SBA | 50122338 |
| Interconnection cable 20m, PUR sheathing | KB DN/CAN-20000 SBA | 50122339 |
| Connection cables for fieldbus devices | | |
| Connection cables with M12 connector, 5-pin socket - open cable end | | |
| Connection cable 2m, PVC sheathing | K-D M12A-5P-2m-PVC | 50104555 |
| Connection cable 5m, PVC sheathing | K-D M12A-5P-5m-PVC | 50104557 |
| Connection cable 10m, PVC sheathing | K-D M12A-5P-10m-PVC | 50104559 |
| Connection cable 2m, PUR sheathing | K-D M12A-5P-2m-PUR | 50104567 |
| Connection cable 5m, PUR sheathing | K-D M12A-5P-5m-PUR | 50104569 |
| Y-connection and interconnection cables between transmitter and receiver | | |
| Y-connection cable 0.15m/2m, PUR sheathing | K-Y1 M12A-2m-M12A-S-PUR | 50118182 |
| Y-connection cable 0.15m/5m, PUR sheathing | K-Y1 M12A-5m-M12A-S-PUR | 50118183 |
| Y-connection cable 0.15m/10m, PUR sheathing | K-Y1 M12A-10m-M12A-S-PUR | 50122336 |
| Y-connection cable 0.15m/20m, PUR sheathing | K-Y1 M12A-20m-M12A-S-PUR | 50122337 |
| Y-PROFIBUS/RS485 fieldbus interconnection cables | | |
| Y-connection cable short, 0.25m/0.35m, PUR sheathing | K-YPB M12A-M12A-S-PUR | 50123263 |
| Y-connection cable 0.25m/5m, PUR sheathing | K-YPB M12A-5m-M12A-S-PUR | 50123265 |
| PROFIBUS/RS485 fieldbus T adapter | | |
| T adapter: M12 plug, 5-pin; M12 plug, 5-pin, B-coded; M12 socket, 5-pin; B-coded | KDS BUS OUT M12-T-5P | 50109834 |
| PROFIBUS/RS485 fieldbus termination | | |
| M12 terminating connector with integrated terminating resistor | TS 02-4-SA | 50038539 |
| Connection cable M12, B-coded, with integrated terminating resistor | K-SSPB M12A-M12A-2P-0.3m-S-PUR | 50124297 |
| PROFIBUS/RS485 fieldbus socket | | |
| Cable socket M12, 5-pin, B-coded; user configurable | KD 02-5-BA | 50038538 |
| Y-CANopen fieldbus interconnection cables | | |
| Y-connection cable short, 0.25m/0.35m, PUR sheathing | K-YN M12A-M12A-S-PUR | 50118185 |
| Y-connection cable 0.25m/5m, PUR sheathing | K-YN M12A-5m-M12A-S-PUR | 50118184 |
| CANopen fieldbus termination | | |
| M12 terminating connector with integrated terminating resistor | TS 01-5-SA | 50040099 |
| IO-Link accessories | | |
| Programming set for IO-Link, analog and fieldbus devices | | |
| IO-Link USB master V2.0 + cable + power supply unit | SET MD12-US2-IL1.1 + accessories | 50121098 |
| For IO-Link and analog devices | | |
| Interconnection cable CML 730i to IO-Link master, 2m, 8-pin socket / 5-pin connector | K-DS M12A-8P-4P-2m-L-PUR | 50120999 |
| Interconnection cable CML 730i to IO-Link master, 5m, 8-pin socket / 5-pin connector | K-DS M12A-8P-4P-5m-L-PUR | 50121000 |
| For fieldbus devices | | |
| Interconnection cable CML 730i to IO-Link master, 2m, 4-pin socket / 4-pin connector | K-DS M12A-M12A-4P-2m-PVC | 50110126 |